SMALL WATERSHED PROGRAM

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BEFORE THE

SUBCOMMITTEE ON WATERSHED DEVELOPMENT

OF THE

COMMITTEE ON PUBLIC WORKS
HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH CONGRESS

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SMALL WATERSHED PROGRAM

TUESDAY, FEBRUARY 10, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:10 a.m., in room 1302, New House Office Building, Hon. Frank E. Smith, chairman of the subcommittee, presiding.

Mr. SMITH. The subcommittee is in session this morning to review the two watershed projects, or, rather, a watershed project in two areas, one of which is in the district of our colleague on the committee, Mr. Young of Texas, and another in Tennessee, which is in the district of Mr. Reece.

Mr. Reece came by this morning and asked us to express an interest on his part in that project.

We will now ask Mr. Young if he would like to make a statement with regard to this project.

STATEMENT OF HON. JOHN YOUNG, MEMBER OF CONGRESS FROM THE STATE OF TEXAS

Mr. YOUNG. Thank you, Mr. Chairman and gentlemen of the committee.

I will be very brief in my statement. I am sure that there are other witnesses here from the Department of Agriculture who will answer any specific detailed questions that the committee would like to hear answered.

Incidentally, I will be very happy to answer any that I can if the committee would be interested in addressing them to me.

CHILTIPIN-SAN FERNANDO CREEKS AND SAN DIEGO-ROSITA CREEKS, TEX., AND LICK CREEK, TENN.

Mr. Chairman and members of the committee. I want to say in my judgment, of course, this is a highly meritorious project—both of these projects are. The Chiltipin-San Fernando and the San Diego-Rosita projects have been approved by the Bureau of the Budget and, as I understand it, the Corps of Engineers has no objection to them. This entire program was sponsored by an organization called the San Diego-San Fernando and Agua Dulce Creeks Association. It covers four counties down in Texas, and covers three of them rather thoroughly. A third and larger county covers the western end rather generally.

If you will pardon a personal reference, I happened to be county judge in one of those counties at the time this matter was approved, and at my suggestion and recommendation the local interests put up $90,000 for the advance planning of this project. So you can readily appreciate my personal interest in it.

However, I want to assure you gentlemen that this project I think is of the greatest merit. Actually the project is of such a large scope that the Soil Conservation Service had to break the projects up into three different units in order to come within the 250,000-acre limit.

That is all I have to say, Mr. Chairman. I deeply appreciate your courtesy in letting me come here this morning to address you.

Mr. SMITH. In other words, there are two projects here in your district, Mr. Young?

Mr. YOUNG. That is correct; yes, sir.

Mr. SMITH. And they are interrelated, from what you say?

Mr. YOUNG. Yes, sir. Actually, there are three projects. There is a third project called the Agua Dulce Creek project, which is not at the Federal level because the Federal contribution is only $95,000 compared to over a $1 million local contribution, and it can be settled at the State level. However, it will not be settled until the other two are approved, so there are really three projects.

Mr. MACK. Mr. Chairman.

Mr. SMITH. Mr. Mack.

Mr. MACK. You spoke of being the local county judge, Mr. Young. Is that like the superior court in our State?

Mr. YOUNG. Under Texas legal procedure the county judge of a county varies in different counties, depending on the population. Nueces County, where I live and where I was county judge, is one of the larger counties, and therefore a county judge's duties there are mostly administrative, mostly like a mayor or city manager, but there are some judicial functions, like the probate and eminent domain functions. However, it is mostly administrative.

Mr. MACK. Thank you.

Mr. SMITH. Thank you very much, Mr. Young.

Now we will hear from another Mr. Young. This is Mr. Gladwin E. Young, Deputy Administrator of the Soil Conservation Service of the Department of Agriculture.

Mr. Young, I might tell you, on behalf of this committee, that we hope through this new subcommittee of the Public Works Committee to give a more thorough study to these projects and the many aspects of the program that you carry on in relation to other water agencies of the Government, not from any feeling that we believe anything is wrong or that there is anything objectionable in your goals, or anything like that, but merely because we are interested in furthering the contribution leading to a sound water policy for all the country.

One of the things we want to do is to examine in detail these joint projects, such as this one, that come before our committee. So we hope you will use this occasion, not because we especially have any concern about the projects before us today, but because we want to try to learn something about how your agency approaches these particular problems, in relation to what you are presenting to us today.

STATEMENT OF GLADWIN E. YOUNG, DEPUTY ADMINISTRATOR; ACCOMPANIED BY CARL B. BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR FOR WATERSHEDS, SOIL CONSERVATION SERVICE, DEPARTMENT OF AGRICULTURE

Mr. GLADWIN YOUNG. Mr. Chairman, is it your wish that we discuss these two projects specifically before you?

Mr. SMITH. We want you to discuss them specifically because we will not have time for a general discussion of the overall program.

Mr. GLADWIN YOUNG. Yes.

Mr. SMITH. But we want to use this information we get about them as a background for what we are building up.

Mr. GLADWIN YOUNG. As you know, Mr. Chairman, these two projects have been submitted to the Congress through the President, with the Bureau of the Budget acting for the President. They were submitted through the regular channels and procedures that were set up for the clearance of applications for watershed projects.

A planning party in the State of Texas went into the application and worked with the local organizations in developing the work plan and found them technically and economically feasible, and recommended the project to the Secretary of Agriculture for his approval.

Our administrator approved it and sent it out for interagency review, so that all of the agencies of the Federal Government and the Governor of the State reviewed the project and found no objection to it. Through that process it was submitted to your committee for approval. So it appears before you this morning as a fully approved project.

Now, if there are specific details about the projects, Carl Brown can answer these questions or make any statements about the specific details of each of these projects.

Mr. SMITH. All right. I think we would like to get some of the details involved, I mean, a little bit more than is involved in the summary sheet which we all have.

Mr. BALDWIN. Could I ask a question?

I noticed in both of these cases, Mr. Young, that you gave the Public Law 566 share and the other than Public Law 566 share, and in both of these cases they are approximately equivalent and vary only slightly.

Could you tell us just exactly how you determined which portion of these projects is going to be borne under Public Law 566, and will be put up by the Federal Government, and what portion will be put up locally?

Mr. GLADWIN YOUNG. Carl Brown will answer that.

Mr. BROWN. Yes, Congressman.

That is specified in the act itself. The project consists basically of two parts—the land treatment measures and the structural measures, which, in the case of these three projects, are floodwater detention structures. Under the act the entire cost of the land treatment measures must be born by the local people. The Federal Govern-

ment provides the technical assistance, or it may provide technical assistance out of Public Law 566 funds.

With respect to the structural measures, the entire construction cost is borne by the Federal Government. The local organizations are required to furnish the lands, easements and rights-of-way, and undertake the contracting which involves the administrative expense of contracting for the structures. It must also guarantee the operation and maintenance of the structures.

So that the overall cost-sharing is determined on the basis of the costs attached to those separate items in the project.

Mr. BALDWIN. I see. So that the Federal figures then are actually for these flood control dams or structures that we are approving?

Mr. BROWN. It is the construction cost plus the engineering services for the structures, plus technical assistance for the land treatment measures.

Mr. BALDWIN. I see. Thank you.

Mr. MACK. I see no objection to these projects. They seem to be attractive from a benefit-cost ratio standpoint. However, there will be many projects of this kind coming before the committee and the Congress. We of the committee ought to have information as to how this program works in order to be prepared to answer questions of Members on the floor.

I would like to know how a project is inaugurated. It is inaugurated by the local soil conservation district or it is inaugurated by the Department of Agriculture?

Mr. BROWN. Yes, sir, Mr. Mack. Under the provisions of Public Law 566 the application for assistance must come from a qualified local organization. That means it must come from an organization which has the authority under State law to carry out and operate and maintain the projects.

Mr. MACK. Yes.

Mr. BROWN. So that the projects are cosponsored, as is the case here. They are cosponsored by the soil conservation districts and some other legal organization which has powers of taxation and eminent domain.

Mr. MACK. The request comes to the Department. Then do you send engineers into the field and make a survey to determine whether the project is economically feasible?

Mr. BROWN. We do that, but there are some steps prior to our undertaking to provide assistance. First, the application must be generated by the local organization. Then it must be submitted to an agency of the State government designated by the Governor to receive and approve these projects. In Texas that is the State soil conservation board. The project must go to the State soil conservation board and it must be approved there before it can be transmitted to the Secretary of Agriculture.

Mr. MACK. Does the Federal Government make the survey and make the plans for the project?

Mr. BROWN. When those applications have been received in Washington, when there are funds or resources available to give assistance to the local organizations, then we go back to the State agency and ask them to designate a priority on projects to be investigated, that is, surveyed in the State.

As Congressman Young pointed out, in the case of these two projects from Texas the local organization put up the entire cost of carrying out the investigation. They paid the entire cost. The investigation was made and the work plan prepared by personnel of the Soil Conservation Service, but the funds in this instance were transferred to or made available in a working fund to the Soil Conservation Service by the local organization.

Mr. MACK. There are certain of these projects that may be approved, as I understand it, by the Secretary of Agriculture, without any action by the Congress. That is a project that includes no structure of more than 4,000 acre-feet of storage, and no combined structures having more than 25,000 acre-feet of storage or a project costing more than $250,000.

Mr. BROWN. That is correct.

Mr. MACK. How much money was there in the current budget for this program?

Mr. BROWN. The budget for the current fiscal year? .

Mr. MACK. The present year.

Mr. BROWN. The present fiscal year provided a total of $25,500,000 under the item of watershed protection.

Mr. MACK. How much are you asking for fiscal 1960?

Mr. BROWN. The amount is $20 million for next year.

Mr. MACK. If there should be a project costing less than $250,000 and it involved a series of structures, let us say, with 3,000 acre-feet of storage each, eight of those, coming up to a total of 24,000 acre-feet, that project could be approved by the Secretary of Agriculture without a reference of the project to the Congress?

Mr. BROWN. If there is any project having more than 2,500 acre-feet in total, that project must come to Congress, regardless of cost. Or if the total cost of the construction in the project exceeds $250,000 it must come to Congress, regardless of the size of the structure. Those two conditions are independent.

Mr. MACK. I notice that for one of these projects the total cost is about $2,500,000, of which the Federal Government supplies $1,300,000. It calls for a 5-year program.

Do you mean the construction of this $2,500,000 project would extend over 5 years?

Mr. BROWN. Yes, sir.

Mr. MACK. Would it not be much more economical if you could let contracts so that a project could be completed in 1 year?

Mr. BROWN. No. We doubt if that would be possible. We encourage, of course, the shortest time that the local organization feels that they can carry out their commitment in. The contract is contingent on the acquirement of lands, easements, and rights-of-way by the local organization and the perfection of their administrative machinery. They often have to negotiate loans for their part of the job. So it is they and not us who set the time at the minimum that they believe they will be able to fulfill their commitments.

Mr. MACK. I was thinking it might be much more economical for the Government to undertake fewer projects each year, but put these through with greater speed, rather than extending them over a long period of time.

Mr. BROWN. That is not within the control of the Government. In other words, it is not the same thing as building a single large dam. These are projects which have many separate units of work. We do not find that there are necessarily any better bids on a large number of these structures than it is to put out bids on one or two at a time.

Mr. MACK. How do local interests normally finance their part of the cost? By bond issues, or annual tax levies?

Mr. BROWN. They have financing for costs in a number of different ways. Ordinarily it is done by raising of tax revenues and in some of the smaller projects by actually passing the hat, you might say.

Mr. MACK. That is all, Mr. Chairman.

Mr. SMITH. For the benefit of the committee, you will note that the information which you have in front of you is a summary of the entire procedure that is followed on these projects.

Mr. THOMPSON. I would like to ask a question of Mr. Young. If you have a project which is estimated to take 5 years to complete, how is this money withdrawn from the appropriated funds? Is it withdrawn all at one time at the outset, or do you withdraw only from this current year's appropriation those amounts necessary to finish that part of the work that will be finished in a certain year?

Mr. GLADWIN YOUNG. That is right. Each part of the construction work is agreed to with the local organization and with the local organization actually doing the contracting. We sign the project agreement as an instrument to turn moneys directly over to them to make the contracts. That is done at the time the actual construction is ready for contracting.

Mr. THOMPSON. Do you withdraw the entire amount for the total estimated cost of the completed job, or only those amounts due and payable in the current year?

Mr. GLADWIN YOUNG. We withdraw the amount to carry out the part of that project agreement, and that may only be a part of the 5 years' construction.

Mr. THOMPSON. Then you anticipate the Congress appropriating more funds during the ensuing 4 years for the remainder of the project?

Mr. GLADWIN YOUNG. That is right.

Mr. THOMPSON. How do you know the Congress will continue this program? What would happen if the Congress refused to appropriate or if the budget did not include an amount for the watershed program, let us say, 3 years hence?

Mr. GLADWIN YOUNG. What you are getting at is, it might be better——

Mr. THOMPSON. What makes you sure you can complete a 5-year project under that system of operation?

Mr. BROWN. I think that operates, Congressman, in the same way that the construction of the Missouri River dams operate in. They are constructed over a period considerably longer than 5-year period, and they are contingent on annual appropriations to maintain the construction schedule. I do not believe this program operates in any different manner in that respect than do the public works programs where construction is scheduled over a period of years. When we sign a project agreement—I should point out this, however—when we sign a project agreement that is for a unit of construction, and that may

include work in this fiscal year, and it may include some work in the next fiscal year, but those funds are obligated by that project agreement and that work is completed. Even if the other work is not completed or if the Congress should not appropriate money, that work stands there. There is no loss from having constructed it. Of course, if you had one single large dam and you appropriated half of the money to construct it and it was only half built, you would not have anything until it was finished.

Mr. THOMPSON. I understand that, but what I am trying to find out is: In these large multitudinous projects you try to make each phase a separate and complete unit in itself?

Mr. BROWN. That is right. Each project makes a complete construction job and the money is obligated for that job.

Mr. THOMPSON. That is all.

Mr. SMITH. Mr. Wright.

Mr. WRIGHT. You have a great many more applications every year than the budgetary allowance will permit you to authorize and work on, do you not? For instance, I notice in the current fiscal year you mentioned you have $25,500,000 available for this kind of work, and in the requested budget for the new fiscal year I believe you said there is only $20 million.

Mr. GLADWIN YOUNG. That is right.

Mr. WRIGHT. On the basis of $25,500,000, this particular project being a $1,300,000 project, were you to undertake to complete the whole project in 1 year it would only be possible to work on 18 some such projects in the whole Nation, would it not?

Let me ask you this question as a matter of interest: I think you said the State establishes a priority for investigations.

Mr. GLADWIN YOUNG. That is right.

Mr. WRIGHT. How big a backlog do you have throughout the country in applications that you have not even been able to investigate?

Mr. GLADWIN YOUNG. On January 31 we had received 1,054 applications. Of that number we had approved 410 for planning. Of that number 142 had been approved, either approved by action of the Congress or approved administratively for the small projects as were brought out. So there are 142 that are ready for project agreements and commitment funds.

Mr. WRIGHT. Within the budgetary framework, on how many of those do you estimate you will actually be able to begin construction?

Mr. GLADWIN YOUNG. We anticipate for this fiscal year there will be 60 projects in this fiscal year where we will make construction agreements.

Mr. SCHWENGEL. Will the gentleman yield at this point?

Mr. WRIGHT. Yes.

Mr. SCHWENGEL. I would like to ask in connection with that, what percentage of the total this represents in area? Of that 142 which you said were approved, does that represent about the same percentage as the total figure does? I mean, it would indicate roughly 10 percent or a little more than 10 percent approved. I guess it is about 13 or 14 percent.

Mr. GLADWIN YOUNG. That merely means that number of projects have reached the stage of reaching an agreement with the local organization that they would attempt to get easements. They did not know

yet whether or not they could get easements, but they had agreed to the work plan, and those work plans had been submitted either to the Congress for approval or the Public Works Committees or to the Agriculture Committees, or had been administratively approved.

Mr. SCHWENGEL. At that point you are pretty sure you are going ahead, are you not?

Mr. GLADWIN YOUNG. No, that is not a guarantee that the work can go ahead, because the local organization still has the problems of their own with respect to financing their part of the cost, and with respect to getting easements and rights-of-way. We found that these, like any new program, require some new steps on the part of the State legislatures to enable them to pass the proper enabling legislation to permit these local watershed communities properly to take their responsibility. We are finding that that is slow and it is holding up a good many watershed communities while they work out that sort of thing.

Mr. SMITH. If the Chair may interrupt at this moment, we have just a little bit of time left. I hope we can confine our questions for the remainder of this period to the specific projects we have before us. We have specific plans to have a general study of this problem, which we will take up in a very short time. We have these hearings today in respect to these particular projects primarily out of courtesy to one of our committee members, Mr. Young, who has this problem confronting him. We also have one which we have not even discussed yet.

Are there any further questions?

Mr. SCHWENGEL. Mr. Chairman, I have the floor and I will yield it back.

Mr. WRIGHT. That is all.

Mr. BALDWIN. I have one question. When these two specific projects, if we approve them, come up, are there any funds in the budget for either fiscal year 1959 or fiscal year 1960 that will be available to begin these projects?

Mr. GLADWIN YOUNG. Yes.

Mr. BALDWIN. Which year?

Mr. GLADWIN YOUNG. Either year. These funds are carryover funds.

Mr. BALDWIN. In other words, there are still funds available in fiscal year 1959 so that if these are approved you can use a portion of those funds to start these projects?

Mr. GLADWIN YOUNG. That is right.

Mr. SMITH. Mr. Young, I was interested in the comment that the Secretary of the Army made in respect to this Lick Creek watershed project in Tennessee, wherein he calls attention to the fact, which is of course obvious from the report, that this plan calls for the installation of 41 reservoirs and an improvement of 100 miles of stream channel at a cost of about $445 per acre on the flood plain. From my experience in overall flood control projects handled by the Corps of Engineers, that is a fairly high cost per acre. In fact, I understand that this project was investigated by the Corps of Engineers some years ago for some flood protection project for this area and they found it economically infeasible.

I just wonder what the situation is there. Is a project that would not be economically feasible with the Corps of Engineers likely to get a favorable report from the Soil Conservation Service?

Mr. GLADWIN YOUNG. The same benefits should be there in either case. It does not matter which agency is handling that. I would like to point out that there is more than just the flood plain lands involved. I think Mr. Brown has a comment on that.

Mr. SMITH. This figure I mentioned of $445 per acre is the Federal cost involved here.

Mr. GLADWIN YOUNG. If you divide the Federal cost by the acres of flood plain, it is probably correct arithmetic, but it may not be correct to assess that cost only to the acres of flood plain.

Mr. SMITH. That is what I mean. The total overall cost being borne by the Federal Government.

Mr. BROWN. That is the total cost of the structural measures of which I believe about 85 percent is Federal cost. It does include the cost of lands, easements, and rights-of-way which the local organizations have to bear. Our evaluations in this watershed showed a total annual damage of $454,000 of all types. About two-thirds of that is damage to crops and agricultural facilities. About one-third of it is damage to roads, bridges, and nonagricultural facilities. If you took just the agricultural part of it it would represent about $300 per acre, rather than the $445 per acre, if you deduct for the bridges, and so forth.

According to the formula used by both the Corps of Engineers and the Soil Conservation Service, that represents an average crop or pasture reduction or benefit of about $14 per acre per year, which is a rather modest figure, I believe.

Mr. SMITH. The benefits to roads and other public facilities amount to how much out of that total of $4,754,000?

Mr. BROWN. The total damage in the area is $454,000 in round figures. There is a damage specifically to roads and bridges of about $41,000. The indirect damages are evaluated at nearly $70,000, which are the results of delays in traffic, transportation and other factors, which are usually included in indirect damage appraisals.

Mr. SMITH. I hope that the engineers are listening to some of these items that are being used in computing economic benefits.

Are there any further questions that members of the committee have of the Soil Conservation Service people about these three projects?

Thank you very much, gentlemen.

General Person, can you come around, please? We would like to have your comments in behalf of the Corps of Engineers, concerning the role the Corps of Engineers will have with regard to these projects.

STATEMENT OF BRIG. GEN. JOHN L. PERSON, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS

General PERSON. Yes, sir. The three projects under consideration have been reported on by the Secretary of the Army to the Secretary of Agriculture, and we have stated none of the three will conflict in any way with any planned program of the Corps of Engineers.

Mr. SMITH. There will be no conflict in any way?

General PERSON. That is right.

Mr. SMITH. Will they tie into any project which you have currently authorized and under construction?

General PERSON. None to any extent. One of them is above the town of Ellis, Tex., where we have completed a local protection project, but it will merely provide a higher degree of safety for that project, and it will not in any way affect it adversely.

Mr. SMITH. One question I should have asked Mr. Young. I noticed in regard to one of the Texas projects that it involved some levees that will protect the city of Bishop, Tex. Is that protection for an urban center a part of the specific scope of the soil conservation program?

Mr. GLADWIN YOUNG. Yes, sir. It is a part of the scope of the Watershed Protection Act. Whenever any urban protection will be a part of the watershed project, it is not excluded.

Mr. SMITH. I have always been told by some of these people who are not actually employees of your organization, but some of the people who have spoken in behalf of the soil conservation programs, that they are opposed to levees and they think that the Soil Conservation Service program did away with the need for levees. Your agency does not accept that in regard to this project?

Mr. GLADWIN YOUNG. No, sir.

Mr. SMITH. I noticed in regard to this Tennessee project, General Person, that your Corps of Engineers did make a survey on that. When did the Corps of Engineers make that survey?

General PERSON. It was studied in 1950. The report was actually submitted to Congress in 1953, but the study was made in 1950.

Mr. SMITH. It was an adverse report?

General PERSON. Yes, sir.

Mr. SMITH. What was the economic ratio?

General PERSON. It was .55, sir. At that time, of course, our estimate of annual damages was only $227,000.

Mr. SMITH. What annual damages did you show? What was the basis for that computation?

General PERSON. Based on experience up to that time. The land values in the area and the effect on the roads and bridges, and so forth, came up to $227,000.

Mr. SMITH. Did you consider the delays in traffic?

General PERSON. We generally do. I am not sure of the details in this case.

Mr. SMITH. In relation to that project—and that report, incidentally, was made in 1953, you said?

General PERSON. The study was made in 1950 and it was reported to Congress in 1953.

Mr. SMITH. Did you consider at that time any possibility of land enhancement in that project?

General PERSON. We did not get that far because the economics were clearly unsound with land values existing at that time. Of course, in the 8 years since there have undoubtedly been changes in land values, or else the project would not be justified now.

Mr. SMITH. Did you survey approximately the same areas geographically?

General PERSON. Yes, sir. Approximately the same.

Mr. SMITH. Are there any questions? Mr. Thompson?

Mr. THOMPSON. Yes.

General Person, is the Corps of Engineers as a matter of policy in agreement with the matter of procedure on these watershed projects overall?

General PERSON. Yes, sir. As a matter of fact, we very recently concluded an agreement with the Department of Agriculture defining more closely our respective responsibilities in the field of urban protection, in which we have agreed that where a watershed project involved purely channel clearing, or levee work for an urban area, that the Department of Agriculture will not engage in that activity.

However, where urban protection can be achieved by reservoirs in a watershed protection program, or if the urban protection is only incidental to a larger watershed protection project, then either they or we can engage in the project. But it has been agreed where it is purely levee work or channel clearing for the sole purpose of protecting an urban area, they have agreed they will step back and we will take over.

Mr. THOMPSON. General, when it is indicated to you such a project is in the planning stage, where do you get your authority to send men out to make a survey?

General PERSON. It would depend on the scope and the size of the project. We would hear about it first, normally, from the Department of Agriculture, if they had first been approached by the local interests. We have a case in point up in Delaware right now, near Wilmington, where the Department of Agriculture has come to us and said, "Look, we have a request for a purely urban protection project. We do not want to touch it. Will you take over?"

We can study and we will study immediately the project to see whether it is eligible under Public Law 685, which is our small unauthorized projects authority. If not, we will have to contact the local people and suggest this committee might wish to give us a review resolution to permit us to make a survey.

Mr. THOMPSON. The expenses involved in such surveys on watershed projects are taken from your regular survey funds?

General PERSON. Yes.

Mr. THOMPSON. From all other project surveys?

General PERSON. Yes, sir; except for Public Law 685. In other words, the study of a project which might be done either by Agriculture or by us would be done under our regular survey money if it is over $400,000.

Mr. THOMPSON. There is no arrangement with the Soil Conservation Service to make a refund to the Corps of Engineers for any such surveys?

General PERSON. No, sir. Any information which we develop in our studies or they develop in their studies is available to the other agency.

Mr. THOMPSON. Then you believe that the Congress should specifically appropriate funds for such surveys which are not within the scope of the flood control survey?

General PERSON. Well, we do have a special appropriation for studies made in connection with Soil Conservation Service projects which are actually accomplished by the Soil Conservation Service, but where it is a project to be accomplished by us then I do not think there is any difference between that project and any of our other projects.

Mr. THOMPSON. For the watershed projects that do not involve urban protection you take the funds for the surveys out of a special fund for such projects and do not take it out of your regular survey funds?

General PERSON. No, sir. When we have to make studies for the Soil Conservation Service in connection with our review of their reports on a project which they are going to build, then we have special money. But if it is a flood control project and a small one it might be done by the Soil Conservation Service under their authority or it might be done by us under our authority. So our studies then would be done with our regular money.

Mr. THOMPSON. Thank you. That is all.

Mr. SMITH. Are there any further questions?

Mr. BALDWIN. I have one question.

General Person, with regard to these surveys, my understanding is that the surveys that are authorized for the Corps of Engineers to carry out have a backlog of several years in many cases. In other words, the number of surveys we have authorized in this committee is far in excess of the amount of funds you have in appropriations each year.

Do you put these survesy for the soil conservation projects ahead of those, or give them the same waiting time as you give the others?

General PERSON. They would be in the same category. The work we do for the Soil Conservation Service is very minor. It merely consists of reviewing their plans and in some cases going out on reconnaissance with them at the time their plans are developed. We do not spend any great amount. I think we have $50,000 a year for activities connected with soil conservation projects. Another project which might either be done by the Soil Conservation Service or by us would take its place along with the rest of our backlog.

Mr. MACK. Mr. Chairman.

Mr. SMITH. Mr. Mack.

Mr. MACK. General Person, did I understand you to say that the benefit-cost ratio on this Lick Creek project was $1.55 of cost to each dollar of benefits?

General PERSON. No, sir. $1 of cost to each 55 cents of benefits.

Mr. MACK. $1 of cost to each 55 cents of benefits?

General PERSON. Yes.

Mr. MACK. The Department of Agriculture gives a benefit of 1.6 to each $1 of cost. This is a wide discrepancy.

Did your program envision about the same nature of construction?

General PERSON. No, sir. Our plan, or rather our people, found that the most economic and most suitable method at that time was channel clearing and levees. At that time there was great local opposition to any discussion of building dams. That was 8 years ago. Conditions have changed. It may be that the benefits arising from the little dams upstream could very well have increased materially, and of course we have not made a recent economic study of the valley. It is very probable that land values have increased materially in the 8 years intervening.

Mr. MACK. Have any major floods occurred in the area since 1953?

General PERSON. I do not believe so.

Mr. MACK. Are there any communities where there might be danger to life?

General PERSON. No, sir. There is no loss of life factor here.

Mr. MACK. Is there a printed report available of the 1953 survey?

General PERSON. Yes, sir.

Mr. MACK. Mr. Chairman, I should think on this project, due to the wide discrepancy, the committee ought to have the opportunity of reading the Corps of Engineers' report before taking definite action on it.

General PERSON. I have a copy which I can leave with the Congressman.

Mr. THOMPSON. Will the gentleman yield?

Mr. MACK. Yes.

Mr. THOMPSON. Did the gentleman not say his survey had to do with channel changing and levees, whereas this request had to do with the building of retaining dams?

General PERSON. That is right.

Mr. THOMPSON. So the study of the survey report would not have much bearing on what is shown in the survey of the Department of Agriculture?

General PERSON. That is what I meant to imply. Possibly the benefits below the little dams might well result in an increase.

Mr. THOMPSON. Your reason for not surveying for a dam was because of the vast local opposition at that time?

General PERSON. Yes.

Mr. THOMPSON. How long would it take for the Corps of Engineers to complete a survey on the new or present concept?

General PERSON. I would say probably a year, sir.

Mr. BALDWIN. Will the gentleman yield?

Mr. THOMPSON. Mr. Mack has the floor.

Mr. MACK. The cost per acre under the Department of Agriculture plan is $445. I assume it includes both local cost and cost for the Federal Government?

General PERSON. Yes, sir. I think that is right.

Mr. MACK. The local plus the Federal cost.

General PERSON. The local cost for structures.

Mr. MACK. It would be about $300 of Federal cost that would be involved then?

General PERSON. I would say about that.

Mr. MACK. It is about a 2-to-1 ratio.

General PERSON. The Federal cost of the structures is $4,378,000 and the non-Federal for structures is $375,000, for a total of $4,754,000.

Mr. MACK. The cost of $445 per acre strikes me as a pretty terrific cost.

General PERSON. We felt it was rather high and that is why we pointed it out to the Secretary of Agriculture in our comments.

Mr. MACK. I yield to Mr. Baldwin.

Mr. BALDWIN. All I want to say is, we have to take the word of the Soil Conservation Service. We certainly do not want to double up the Federal costs involved by saying that the Corps of Engineers has to do over the work which the Soil Conservation Service did.

Mr. MACK. No. The only thing I say is, we should have an opportunity to read the Corps of Engineers' survey, which was made in 1953, before we take final action on this project.

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Mr. BALDWIN. I share the view of Mr. Thompson that when we would read it we still will not have the answer on this, because they are not reporting on the same project.

Mr. SMITH. Unless there are more questions of General Person, we will let him go so we can have these projects for executive consideration. As long as we are going to have an executive meeting of the full committee, we might as well go into an executive session of the subcommittee at this time, while we have our quorum here, and I hope we can do something about these matters.

(Whereupon, at 10:55 a.m. the subcommittee went into executive session.)

SMALL WATERSHED PROGRAM

TUESDAY, APRIL 21, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met, pursuant to call, in room 1302, New House Office Building, at 10:10 a.m., Hon. Frank E. Smith (chairman of the subcommittee) presiding.

Mr. SMITH. The meeting will come to order.

This morning I call the members' attention to this packet of material on each desk from the Soil Conservation Service, which includes a statement of Mr. Williams, the Administrator of the Soil Conservation Service, as well as a great deal of other information about their program.

These hearings are designed to give this committee an opportunity to learn as much as possible about the operation of the watershed program and the Soil Conservation Service insofar as it is related to the overall problem of flood control in the country. We hope that, by having several hearings confined to the agencies responsible for this work before having general public hearings on this matter, we can give the committee a good background of practical information about the operation of the program, so that the members will be in a better position to evaluate everything that is presented in subsequent hearings, which will be thrown open to the general public as far as the testimony is concerned. So I hope that the members will have this goal in mind in the testimony that we hear today. We hope we can cover as much of the subject as possible, and very likely we will ask Mr. Williams and some of his associates to come back to meet with us another time in a week or two, when they have a relatively free day that they can fit in with the committee schedule.

Mr. Williams.

STATEMENT OF DONALD A. WILLIAMS, ADMINISTRATOR, SOIL CONSERVATION SERVICE; ACCOMPANIED BY GLADWIN YOUNG, DEPUTY ADMINISTRATOR, SOIL CONSERVATION SERVICE; HOLLIS WILLIAMS, ASSISTANT ADMINISTRATOR FOR WATERSHEDS, SOIL CONSERVATION SERVICE; CARL BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR, SOIL CONSERVATION SERVICE; JOHN H. WETZEL, DIRECTOR OF WATERSHED PLANNING, SOIL CONSERVATION SERVICE; L. M. ADAMS, GENERAL COUNSEL'S OFFICE, DEPARTMENT OF AGRICULTURE; AND HENRY LOBENSTEIN, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. DONALD WILLIAMS. Mr. Chairman and gentlemen of the committee, we placed before you this folder which contains on the right-hand side a copy of the statement, and secondly a list of the State agencies which have been officially designated by the Governors of their States to exercise responsibility at the State level.

Third is a list of watershed projects, giving their status as of April 1.

Fourth is a copy of the Watershed Protection and Flood Prevention Act as amended.

Then there is a folder, an informational folder of local-State-Federal watershed projects depicting the various steps or processes for the bringing of these watershed projects into being.

Another folder gives the questions and answers about the program, and then a map which shows the location of watershed projects in which applications have been received and approved for some kind of action.

On the left-hand side of the folder are some miscellaneous informational materials we thought you might have some interest in.

Mr. Chairman, if it is permissible with the committee, I would like to present this general statement first.

I might say that I have with me here this morning Mr. Gladwin Young, who is the Deputy Administrator of the Soil Conservation Service; Mr. Hollis Williams, who has just recently been appointed as Assistant Administrator for Watershed Activities; Mr. Carl Brown, who is an assistant on the watershed work; and Mr. Jack Wetzel, who is in charge of our planning activities.

Also I believe in the audience here this morning is a representative of the Forest Service, and a representative of the General Counsel's office.

I will proceed with this statement.

We appreciate this opportunity to report to this subcommittee on progress under the Watershed Protection and Flood Prevention Act.

This watershed program was authorized by the Congress with the enactment of Public Law 566, 83d Congress, in August 1954. While work under this authorization is still in its early stages, substantial progress has been made by the Department of Agriculture in developing workable procedures and by almost all of the State governments in providing enabling legislation and administrative organizations to carry out the responsibilities which, under the act, must be assumed by local sponsoring organizations.

There has been a substantial interest in this program in almost all of the States. By April 1, 1959, almost 1,300 local organizations in 47 States and Puerto Rico had prepared applications for assistance under the act. A total of 1,081 of these applications had been approved by the State agency authorized by the Governor to give such approval. As of the first of this month, the Soil Conservation Service had entered into formal agreements with local sponsoring organizations to assist in the preparation of plans for the conservation and use of both land and water resources in 425 of these watersheds.

Work plans have been completed and approved for 154 watershed projects, and are now authorized for operations. Approximately 100 new watershed work plans will be completed during this fiscal year.

While the full effects of watershed projects completed under this act are not yet achieved, we, nevertheless, have a sound basis for the estimated benefits from them. The effects of watershed treatment are indicated by a substantial body of watershed research as well as by experience and observations on the pilot watershed projects authorized by the Congress in the 1954 Appropriation Act and on the 11 flood prevention projects authorized under the 1944 Flood Control Act.

RESULTS OF WATERSHED TREATMENT

Watershed land treatment and supporting upstream structures are not new in use. For more than 25 years the kinds of conservation measures employed in watersheds have been thoroughly proven as to their soundness and benefits. We would call to your attention some examples of watersheds having rather complete programs on the land and the results obtained under severe tests.

During the storms of April, May, and June 1957, in Texas, Oklahoma, and Arkansas, a number of completed or nearly completed watersheds received such tests. The water control structures and soil conservation practices greatly reduced flooding on the treated watersheds.

Five storms with rainfall ranging from 2.5 to 9 inches in 36 hours occurred in Chigley Sandy Creek in the Washita River watershed of Oklahoma. Although water discharged through the emergency spillways of 11 of the 14 dams, only 94 acres were flooded and damages totaled only $4,700. In contrast, on an adjoining similar watershed, Kickapoo Creek, floods that spring caused $122,000 damage.

Barnitz Creek in Oklahoma, with 54 completed dams, experienced four storms, but no flooding or damage. Beaver Creek, an adjacent untreated watershed, had flooding on 1,045 acres causing about $16,000 damage.

Similar results were recorded in Texas. On Green Creek two storms in April and May 1957 flooded 489 acres and caused $6,000 damage. Rush Creek, 25 miles away, had 12,000 acres flooded by the same storms with $493,000 damage.

Six Mile Creek in Arkansas is one of the pilot watersheds that has been instrumented to study the effects of watershed treatment. Following 2.4 inches of rain on April 26, a stream gage recorded a peak discharge of 2,850 cubic feet per second, and the following day, after 2 more inches of rain, it recorded another peak of 2,970 cubic feet per second. There was no flooding, but if the program had not been in

effect, 2,090 acres would have been flooded on April 26 and 320 acres more the following day.

Moisture penetration studies made in Texas on watershed lands by the Soil Conservation Service in April and May 1957, showed that the average insoak was twice as great on protected land as on unprotected. Thus, needed soil moisture was stored in the soil for future use and much flooding was prevented. For example, where rainfall exceeded 12 inches, average depth of penetration was 55 inches on protected land and 29 inches on unprotected land. Other comparisons confirmed that croplands, pasture, rangelands, and woodlands that were protected by plant cover or other good conservation practices readily absorbed a large part of the drought-breaking rainfall. Unprotected land, on the other hand, sheds the water into streams and rivers, helping to produce an unprecedented series of damaging floods.

Mr. SMITH. At that point, Mr. Williams, do you have any estimate in actual dollars and cents of the value of the returns to the watersheds involved here?

Mr. DONALD WILLIAMS. You mean a particular example?

Mr. SMITH. Yes.

Mr. DONALD WILLIAMS. I will have to ask Mr. Brown with me if he has that information with him, Mr. Chairman.

Mr. BROWN. Sir, the average benefit-cost ratio on the watersheds in this Texas-Oklahoma region is about 2 to 1.

Mr. SMITH. Did you make any evaluation, for instance, of the saving in that area? You show the contrasting damage with an adjacent watershed where there is no protection installed. Did you by any chance have any estimate to show the actual savings in dollars and cents?

Mr. BROWN. Yes. There is an estimate, Congressman, of the total amount of benefits in this area, which was something over $2 million. We have in fact a general storm report, which gives the full details in this evaluation study that was made following those storms. Slightly over $2 million of total benefits.

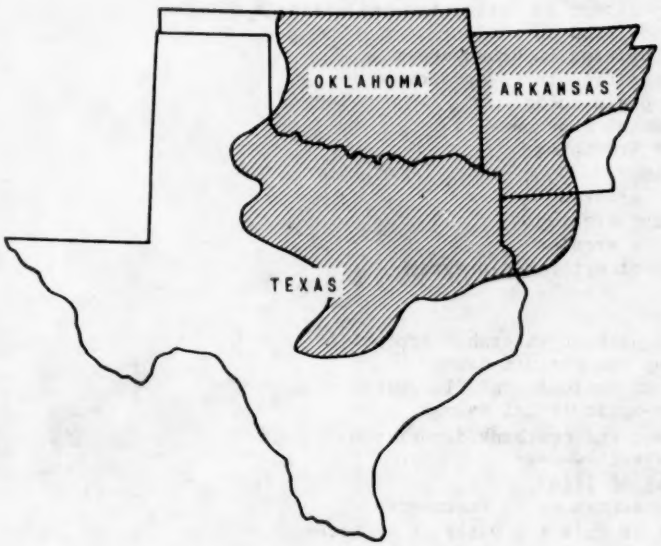
Mr. DONALD WILLIAMS. We will be glad to supply that full report for your record, Mr. Chairman.

Mr. SMITH. It will be a good idea to have that in the record in connection with this statement as background data.

(The report referred to is as follows:)

GENERAL STORM REPORT

COVERING THE STORMS OF APRIL, MAY, AND JUNE, 1957 IN TEXAS, OKLAHOMA, AND ARKANSAS



Compiled By
ENGINEERING AND WATERSHED PLANNING UNIT
FORT WORTH, TEXAS

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

September 1957

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SUMMARY OF GENERAL STORM REPORT

Between 1951 and 1957 the Great Plains states suffered the most severe drouth of record. In some areas of the Southwest, deficient rainfall had been recorded since 1945. Consequently, watershed cover conditions were well below normal over much of the area when the spring storms of 1957 occurred.

Excessive precipitation began falling on April 19 and continued through most of June. During this critical storm period from 20.4 to 53.5 percent of the United States received in excess of 150 percent of normal rainfall. However, the states of Texas, Oklahoma and Arkansas were hardest hit.

Total precipitation of 35 to 40 inches was recorded at several locations in the three states. The mean depth of rainfall over Texas, Oklahoma and Arkansas was 19 inches, which is equivalent to 445 million acre-feet of water. This depth of precipitation is expected to be equaled or exceeded once in 80 to 100 years.

Maximum daily precipitation during the storm period generally ranged from 4 to 10 inches. Daily amounts in excess of 10 inches were limited to small areas. The maximum 2-day precipitation occurred at Hennessey, Oklahoma, where 20 inches was recorded. Monthly maximums of 20.48 inches at Glenfawn, Texas, 22.38 inches at Hennessey, Oklahoma, and 19.07 inches at Sparkman, Arkansas were recorded.

The total volume of runoff for the 3-month period far exceeded previous record volumes. Durwood gage on the Washita River showed 5.76 watershed-inches of runoff as compared to the mean of 1.50 inches for April, May and June. Likewise, the Perkins gage on the Cimarron recorded 3.13 inches as compared to the mean runoff of 0.47 inch.

Flood stages and peak discharges generally were below previous record highs because of relatively low rainfall intensities and dry soils. One exception was the Cimarron River which set new record stages at Waynoka, Perkins and Guthrie, Oklahoma.

The runoff from the series of storms inundated approximately 11,575,000 acres of flood plain lands along the tributary streams in the 3-state area.

There were 367 upstream floodwater retarding structures in operation in the three states, with a combined flood storage capacity of 285,180 acre-feet. Through the process of filling and refilling during the storm period the structures stored and released in an orderly manner 534,800 acre-feet of floodwater. If all applicable tributary watersheds in the 3-state area had been treated, 33 million acre-feet of detention storage would have been available to control 62 million acre-feet of floodwater. If such control had been available, flooding would have been eliminated on about 6,270,000 acres, or 54 percent of the flooded area.

Of the 367 completed floodwater retarding structures, only 99 had flow through the emergency spillway. Three flowed 4 times, 8 flowed

3 times, 23 flowed twice, and 65 flowed once. Damage to emergency spillways consisted primarily of minor to moderate erosion, particularly in those cases where a good vegetative cover had not been established.

Throughout the 3-state area floodwaters deposited infertile soil on about 2,700,000 acres of flood plain land, which was damaged from 5 to 80 percent in terms of reduced productivity. Sediment deposition also destroyed several hundred thousand acres of growing crops and caused extensive damage in flooded urban areas.

Flood plain scour, in the form of sheet and channel erosion, damaged approximately 797,000 acres of bottom land. About 9,700 acres of flood plain land in the 3-state area was destroyed by streambank erosion.

Sheet erosion, ranging from slight to severe, occurred on over 39,000,000 acres of upland. Gully erosion resulted in slight to severe damage to 12,000,000 acres, with only minimum erosion occurring on conservation treated uplands. The area damaged by gully erosion includes the gullied areas and adjacent areas affected by the gullies.

The amount of sediment deposition in major reservoirs varied with watershed conditions. For example, the Belton reservoir, with no watershed projects above, received more sediment in the 3-month period than normally would have been received in a 2-year period. Benbrook reservoir, with a nearly completed watershed project above, received less than half the normally expected amount of sediment.

Croplands, pasture, rangelands and woodlands that were protected by plant cover or other good conservation practices readily absorbed a large part of the drouth-breaking rainfall. Unprotected land, on

the other hand, shed water into streams and rivers, helping to produce an unprecedented series of damaging floods. Moisture penetration studies made in Texas indicated that, on the average, insoak was twice as great on protected land as on unprotected land.

The total monetary damages in tributary watersheds from the floods of April, May and June would have approximated $159,000,000 had there been no protection. Although less spectacular, the loss of crop and pasture production accounted for over half of the monetary damage. Damage to non-agricultural property, such as urban areas, transportation facilities and industrial property, was the second largest item and amounted to over 15 percent of the total damages. At least 10 lives were lost in tributary floods.

The 367 completed floodwater retarding structures in the 3-state area, in conjunction with channel improvements, reduced flood damages by an estimated $2,162,000. Complete watershed protection, including land treatment measures and flood prevention works of improvement, on all applicable watersheds would have provided benefits of approximately $109,320,000 or a reduction of monetary damages of about 70 percent.

GENERAL STORM REPORT

I. Hydrology

For six and one-half years (beginning in the second half of 1951) the Great Plains had been in the grip of the most severe drouth of recorded history. In some areas of the Southwest less than normal precipitation had been recorded since the fourth quarter of 1945--a period of eleven and one-half years. Isolated thunderstorms replenished surface soil moisture temporarily through the drouth period, but surface soil moisture was generally much below the optimum for field and pasture plants most of the time. During the first quarter of 1957, reports of excavations for structural work, foundation explorations, and road cuts were showing powder-dry soil throughout Oklahoma and Texas in the 3- to 12-foot zone. No reports were received for the conditions at depths greater than 12 feet.

Precipitation

Excessive precipitation began falling on April 19, 1957 and continued over the Great Plains through most of June. Precipitation exceeded 150 percent of normal for April over 30.4 percent of the United States. Del Rio and North Central Texas reported 400 and 350 percent of normal, respectively. Precipitation exceeding 6 inches was recorded from central Texas to Indiana. The month's greatest total was 20.48 inches at Glenfawn, in Rusk County, Texas, and some totals exceeding

15 inches were measured in Arkansas, Louisiana, Oklahoma and Missouri. Numerous weather stations reported new record totals for the month, among which were Fort Smith, Arkansas, 10.32 inches; Shreveport, Louisiana, 11.19; Del Rio, Texas, 6.49; and Dallas, Texas, 13.85 inches. The major storm period was from April 19-30. Figure 1 is an isohyetal map of the 4-state area consisting of Texas Oklahoma, Arkansas and Louisiana for April.

Rainfall continued throughout May, with 53.5 percent of the area in the entire country reporting 150 percent of normal precipitation. Del Rio and Abilene, Texas reported 400 and 350 percent of normal, respectively. This month was one of the wettest Mays on record from the Mississippi River Basin westward to the Pacific Coast. New record totals for May were reported by Dallas, San Antonio, and Del Rio, Texas, with measurements of 13.74, 8.22, and 10.23 inches, respectively. The greatest rainfall occurred in an area from Del Rio, Texas through Oklahoma and Arkansas to the lower Ohio Valley. The greatest monthly total was 22.38 inches recorded at Hennessey, Oklahoma, where 13.07 inches fell in approximately 24 hours on the 15th and 16th. The major storm periods were May 1-4, May 8-9 and May 22-27. Figure 2 is an isohyetal map of the 4-state area for May.

The precipitation pattern moved northeastward early in June, and Texas began drying out. The heaviest precipitation occurred over the Mississippi River basin. Total precipitation for the month at Mermantau, Louisiana was 21.12 inches; 13.55 inches was recorded at

Alvin, Texas; 13.54 inches at Nashville Peach Substation, Arkansas; and 16.56 inches at Nowata, Oklahoma. Precipitation in excess of 150 percent of normal was received by 20.4 percent of the United States. Figure 3 is an isohyetal map of the 4-state area for June.

The maximum precipitation ranged up to 40 inches for the 3-month period. This amount was recorded near Hennessey, Oklahoma. From 35 to 40 inches of rain fell at Grove, Newkirk, Nowata, Vinita, Pawhuska, Ralston, Barnsdale, Spavinaw, Hennessey, Prague, Shawnee, and Norman, Oklahoma; at Odell and Ozona, Arkansas; at Honey Grove, Denton, and Greenville, Texas; and at Jennings, Louisiana. Figure 4 is an isohyetal map based on the records from approximately 500 U. S. Weather Bureau rain gages, showing the 3-month total depth of precipitation for Oklahoma, Arkansas, Louisiana, and Texas. Included on the map is an outline of the areas in which watershed protection structural measures are under construction or complete. It is estimated that the mean depth of precipitation for April, May, and June over the 4-state area was 19.0 inches. This represents 444,736,700 acre-feet, an amount that would fill the 2,713,000 acre-foot flood control pool of Lake Texhoma 164 times, or would fill the flood control pools of all Corps of Engineers' authorized and constructed reservoirs in Texas, as of January 1955, 28 times.

The maximum intensity of precipitation for 1-hour duration was generally that which can be expected to occur at 1- to 5-year intervals, with occasional stations reporting 1-hour intensities of 25-year

frequency. The maximum daily precipitation generally ranged from 4 to 10 inches. The maximum daily amounts in excess of 10 inches were limited to small areas in the vicinity of Jacksboro and Lampasas, Texas, and Waukomis, Hennessey, Ardmore, and Prague, Oklahoma. This depth of precipitation can be expected to be equaled or exceeded in those areas about once every 100 years on the average. The maximum 2-day precipitation probably occurred near Hennessey, Oklahoma, where an unofficial 20 inches was reported for May 15 and 16. The maximum 1-month precipitations reported by the U. S. Weather Bureau were Glenfawn, Texas, 20.48 inches; Hennessey, Oklahoma, 22.38 inches; and Sparkman 4E, Arkansas, 19.07 inches.

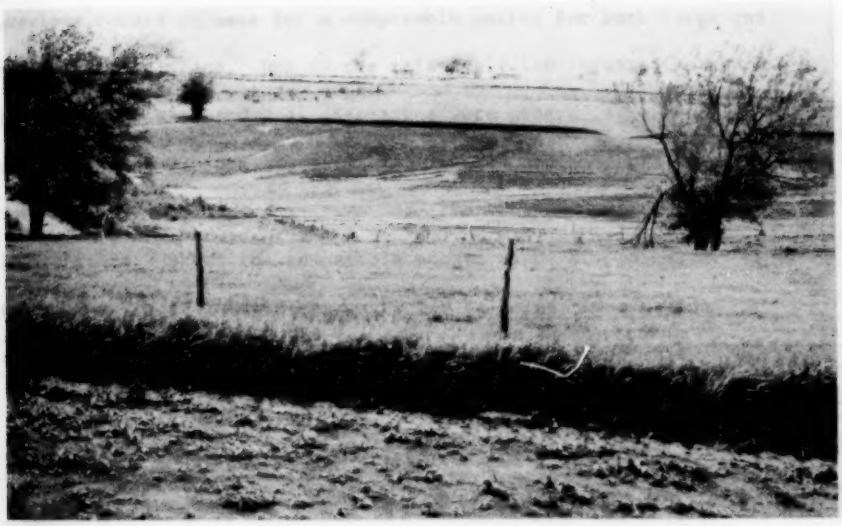
The total precipitation for April and May ranged upward of 20 inches for 50.1 percent of the 4-state area and in excess of 30 inches over 7.8 percent of this area. This depth of precipitation is expected to be equaled or exceeded one time in 80 to 100 years for points within the area. See table 1 for a tabulation of the recurrence interval of 1-hour rainfall and 2-month totals for selected stations in Texas, Oklahoma, and Arkansas. Figure 5 shows cumulative daily rainfall for the three months for selected Weather Bureau stations.

Infiltration

Croplands, pasture, rangelands and woodlands that were protected by plant cover or other good conservation practices readily absorbed a large part of the drouth-breaking rainfall. Unprotected land, on the other hand, shed the water into streams and rivers, helping to produce an unprecedented series of damaging floods.

Te-724-5
Te-726-4
Te-724-8
Te-724-7

Good soil cover increased the insoak . . . .



. . . . and reduced erosion.

46950 O—59——3

This terraced and contoured field passed the test of 9 1/2 inches of rainfall in 12 hours.

This untreated field didn't.

Moisture-penetration studies were made in Texas by Soil Conservation Service technicians in April and May on 133 paired borings on protected and unprotected lands with otherwise similar conditions. Forty of the contrasting pairs were on cropland and 93 on range or pasture. Of the 133 tests, 64 were in areas that had received more than 12 inches of rainfall. Although there was wide variation in depth of penetration under the widely different soil and rainfall conditions, on the average insoak was twice as great on protected land as on unprotected. Where rainfall exceeded 12 inches, average depth of penetration was 55 inches on protected land and 29 inches on unprotected land.

Runoff

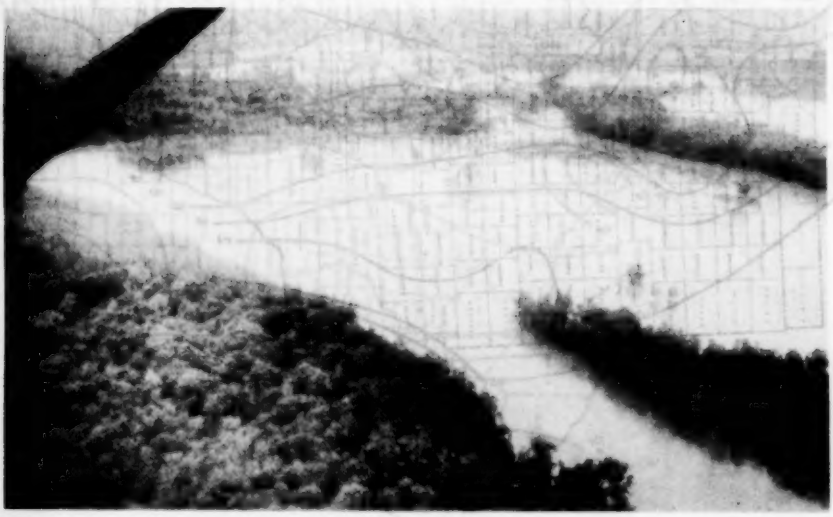
The total volume of runoff for the 3-month storm period far exceeded previous record volumes for a comparable period for both large and small drainage areas. Due to the relatively low intensities and dry soil, flood stages and peak discharges were generally below previous records. One notable exception was the Cimarron River. New record stages were set at Waynoka, Perkins and Guthrie, Oklahoma. Table 2 shows the comparable stages at U. S. Geological Survey and Corps of Engineers gages for selected river basins and the total runoff from the drainage area upstream from the gages.

Te-726-6
Te-725-8
Te-725-11
Ok-483-2

Road ditches ran full

Creeks jumped their banks and flooded pasture lands . . . .

. . . . and croplands.



Rivers spread out over their flood plains.

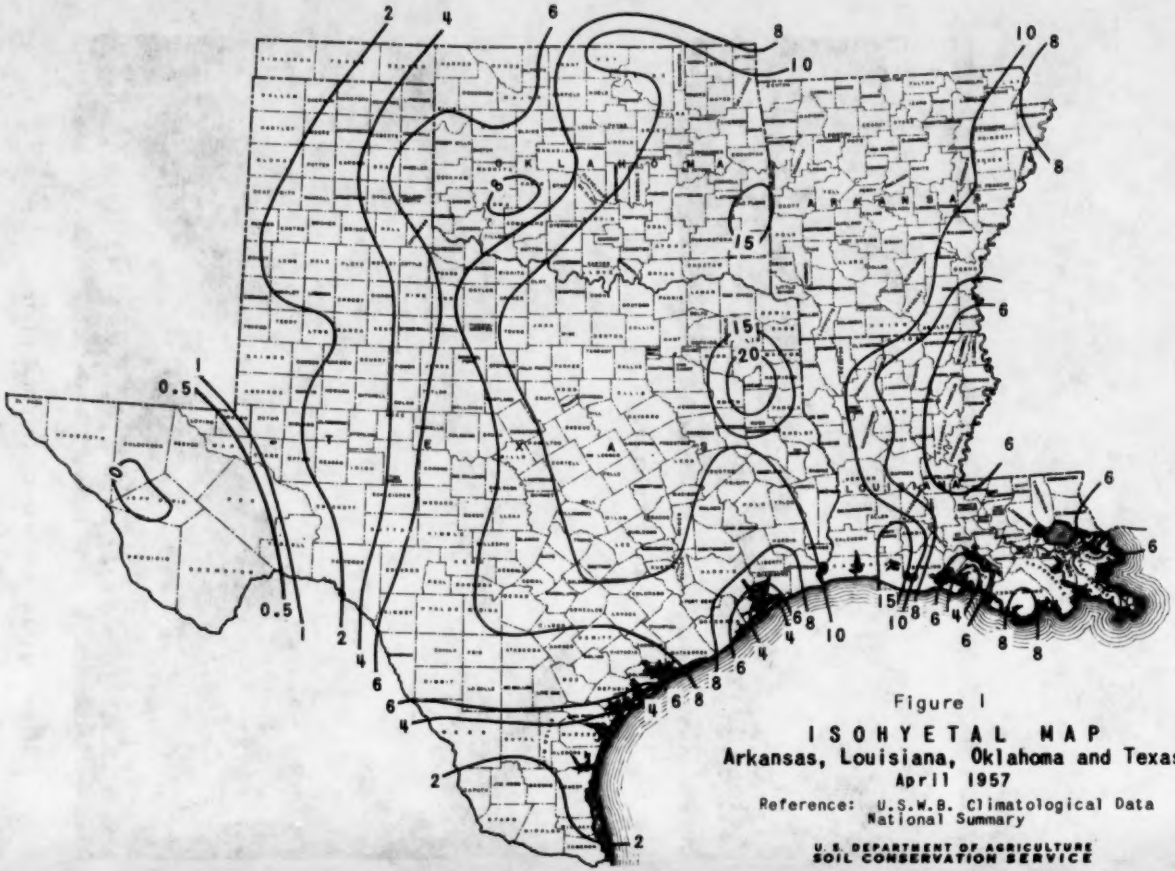


Figure 1

ISOHYETAL MAP
Arkansas, Louisiana, Oklahoma and Texas
April 1957

Reference: U.S.W.B. Climatological Data National Summary

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

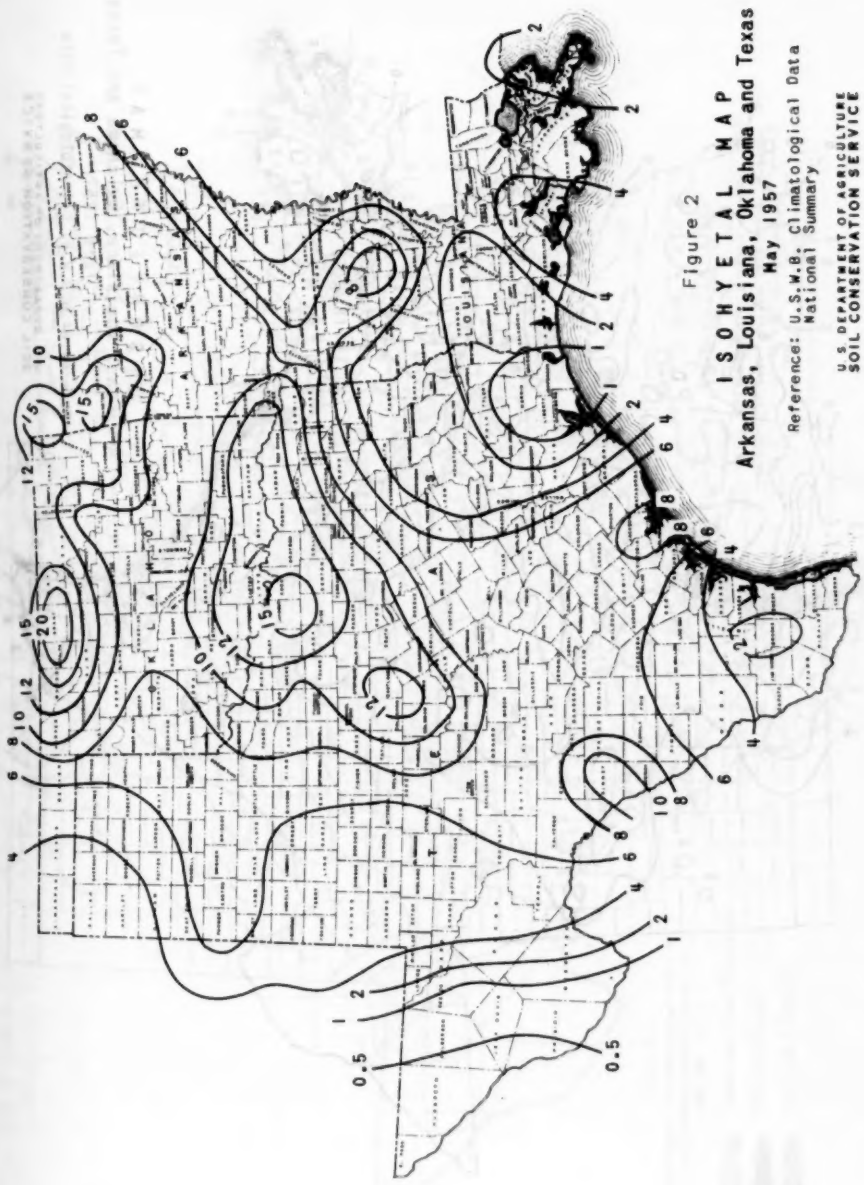


Figure 2

ISOHYETAL MAP
Arkansas, Louisiana, Oklahoma and Texas
May 1957

Reference: U.S.W.B. Climatological Data
National Summary

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

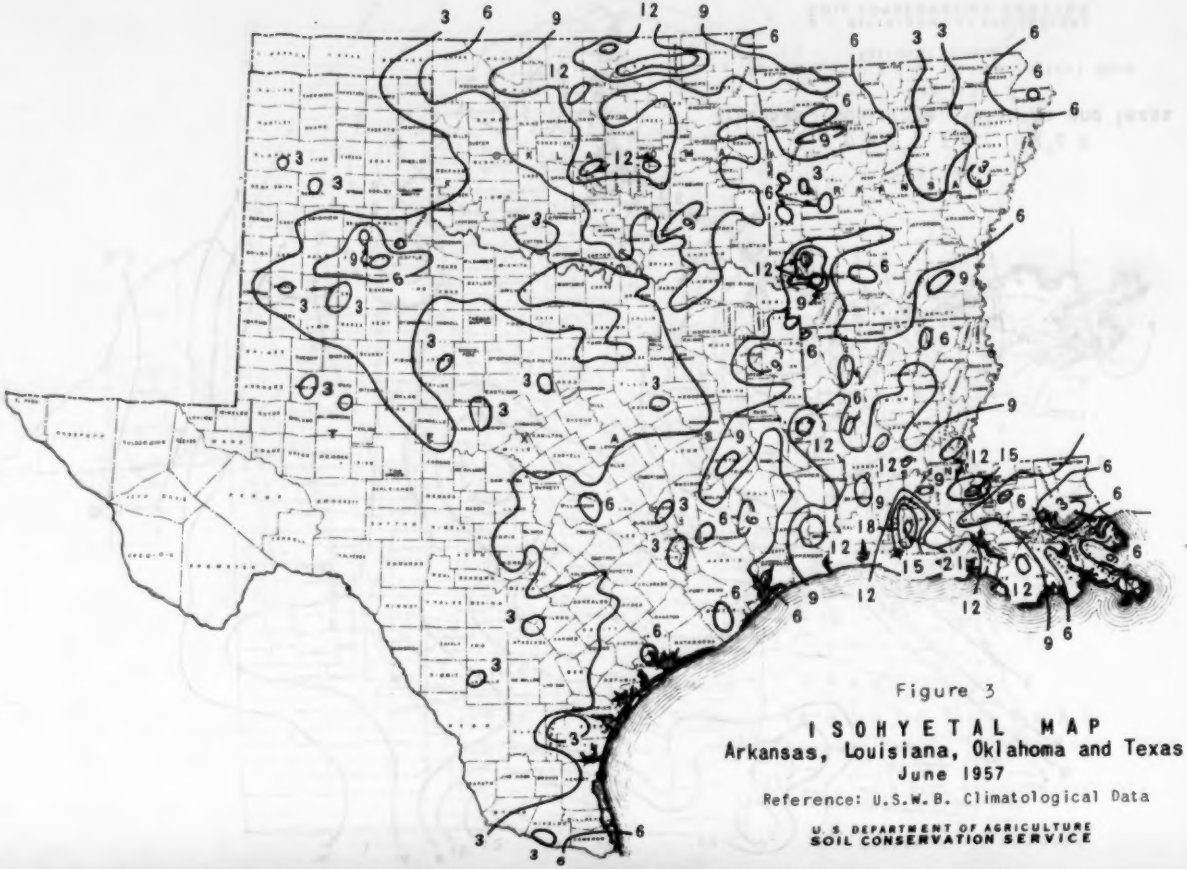


Figure 3

ISOHYETAL MAP
Arkansas, Louisiana, Oklahoma and Texas
June 1957
Reference: U.S.W.B. Climatological Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

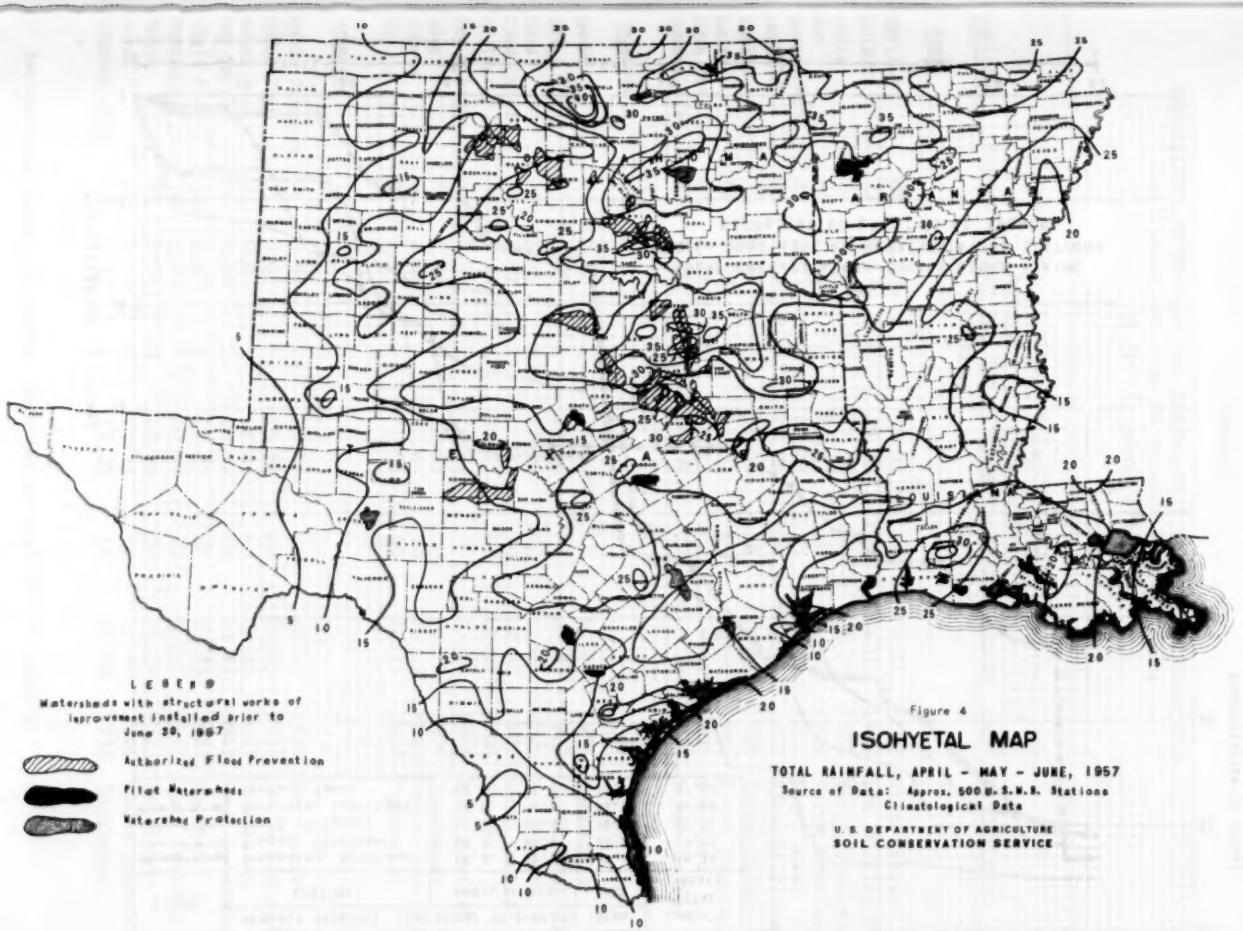

LEGEND
Watersheds with structural works of improvement installed prior to June 30, 1957
Authorized Flood Prevention
Pilot Watersheds
Watershed Protection

Figure 4

ISOHYETAL MAP

TOTAL RAINFALL, APRIL - MAY - JUNE, 1957

Source of Data: Approx. 500 U.S.W.B. Stations Climatological Data

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Figure 5

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

Station

Texas

Amarill
Abilene
Dallas
Waco
Nacogdoc
Lampasas
Houston
Austin
Eagle Pa
Brownsvi

Oklahom

Beaver
Enid
Tulsa
Cloud Ch
Stillwat
Fort Gib
Hobart
Ardmore
Hugo

Arkansa

Eureka Sp
Calico Ro
Marked Tr
Fort Smit
Little Ro
Stuttgart
Fulton
Warren
Arkansas

1/ Estim

Table 1

Precipitation Amounts and Approximate Recurrence Intervals for 1-Hour and 2-Month Periods During Storms of April - June 1957

Station	Years of Record	Max. 1-Hour Rainfall Inches	Max. 1-Hour Rainfall Rec. Int. (Years)	Total Rainfall April-May 1957 Inches	Total Rainfall April-May 1957 Rec. Int. (Years)	Max. 2-Month Rainfall Prior to 1957 Inches	Max. 2-Month Rainfall Prior to 1957 Date	Division
Texas								
Amarillo	68	1.00	1	7.05	7	10.97	1902	High Plains
Abilene	72	0.87	1-	19.71	100+	14.05	1922	Low Rolling Pl.
Dallas	70	1.98	2	27.59	100+	19.70	1922	North Central
Waco	70	1.46	1	20.97	50	21.40	1905	North Central
Nacogdoches	59	2.07	2	20.29	25	22.83	1935	East Texas
Lampasas	63	2.47 1/	5	21.16	70	16.51	1922	Edwards Plateau
Houston	70	0.94	1-	11.45	6	20.05	1929	Upper Coast
Austin	102	1.67	1	17.31	40	20.74	1914	South Central
Eagle Pass	69	2.92	25	18.13	100	16.25	1900	Southern
Brownsville	87	1.66	1	4.09	2	10.29	1939	Lower Valley
Oklahoma								
Beaver	51	0.88 1/	1-	8.19	15	10.64	1951	Panhandle
Enid	55	1.95 1/	5	19.94	80	15.03	1912	North Central
Tulsa	70	1.13	1-	17.46	50	17.43	1943	Northeast
Cloud Chief	51	0.91 1/	1-	17.37	70	12.32	1905	West Central
Stillwater	60	1.94 1/	2	20.78	90	18.11	1908	Central
Fort Gibson	50	1.48	1-	24.57	100	23.14	1908	East Central
Hobart	54	1.29 1/	2	21.63	100+	14.72	1905	Southwest
Ardmore	56	1.66	2	22.44	90	21.14	1940	South Central
Hugo	45	1.17	1-	21.46	40	21.99	1920	Southeast
Arkansas								
Eureka Springs	56	0.92	1-	19.81	60	19.55	1929	Northwest
Calico Rock	53	0.68 1/	1-	18.98	60	20.15	1927	North Central
Marked Tree	53	0.94 1/	1-	18.68	40	21.82	1927	Northeast
Fort Smith	80	2.18	5	22.41	80	18.83	1943	West Central
Little Rock	80	1.52	2	22.92	70	21.63	1927	Central
Stuttgart	70	1.23	1-	17.90	25	19.75	1953	East Central
Fulton	72	2.74 1/	10	18.48	50	11.24	1927	Southwest
Warren	62	1.72 1/	2	12.23	10	18.93	1944	South Central
Arkansas City	72	1.72 1/	2	15.23	10	20.96	1920	Southeast

1/ Estimations based on nearby recorder precipitation records.

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE APRIL

Table 2

Crest Stages and Volumes of Runoff 1/
April-May-June 1957

River	Station	1957 April-June Max. Stage (feet)	1957 Date	Period of Record Max. Stage (feet)	Date	1957 April-May-June Volume of Runoff Watershed Inches	April-May-June Mean Runoff Watershed Inches
Washita	Carnegie	21.40	5- 3	26.21	5-18-47	-	0.84
	Durwood	42.30	5-19	44.37	10-31-41	5.76	1.50
Red	Gainesville	25.14	6- 5	26.53	5-21-51	3.70	0.94
	Fulton	31.12	6- 9			11.39	2.14
Cimarron	Waynoka	15.10	5-16	15.10	5-16-57		0.35
	Guthrie	18.58	5-17	18.58	5-17-57		0.39
	Perkins	19.53	5-17	19.53	5-17-57	3.13	0.47
Little River	Horatio	33.13	4-28	37.7	3-30-45	20.96	7.41
Cypress	Jefferson	205.60	4-30	212.5	4- 1-45	10.70	4.66
Trinity	Dallas	41.72	5-26	52.6	5-25-08	11.46	1.55
	Oakwood	48.87	4-28	51.64	4-29-42	11.00	2.30
	Romayor	32.20	5-10	35.7	5- 9-42	9.92	2.23
Sabine	Milam	45.05	5-11	48.87	4-12-45		4.19
Colorado	Austin	17.60	6- 4	45.0	7- 1-40	2.61	0.40
	Columbus	27.15	4-29	36.2	6-15-35	2.35	0.48
Guadalupe	Victoria	29.92	5- 2	31.22	7- 3-36	3.60	1.41
San Antonio	Goliad	31.56	5- 2	44.9	7- 9-42	2.23	0.54
Neuces	Three Rivers	39.20	5- 3	46.0	9-18-19	1.39	0.31
Brazos	Waco	32.33	4-20	40.9	9-27-36	5.31	0.74
	San Felipe	39.45	5- 3	41.1	11-25-40		1.08

1/ Preliminary data subject to correction.

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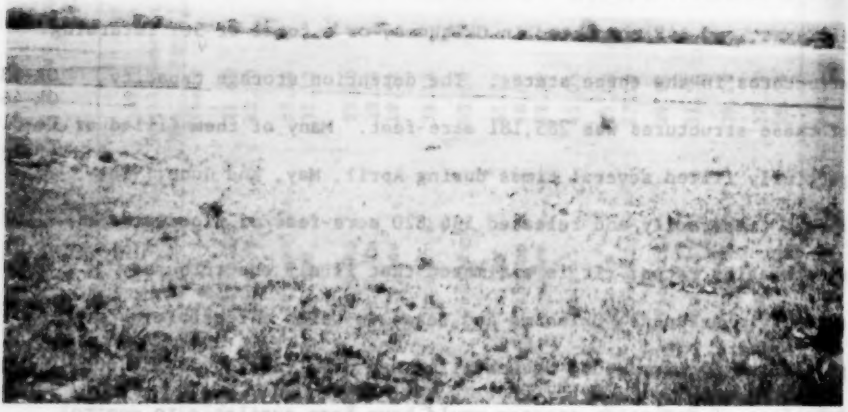
In spite of the relatively low intensities of rainfall, widespread flooding was experienced on the flood plains of tributary streams and rivers. Many tributary streams overflowed their banks several times during the 3-month period. Soil Conservation Service field reports indicate that 8,250,500 acres of tributary bottomland in Texas, 952,000 acres in Arkansas, and 2,554,500 acres in Oklahoma were inundated one or more times. A detailed study of tributary streams on which watershed treatment was complete or very nearly complete indicates that if treatment had been completed on all applicable tributary streams in Texas, Arkansas, and Oklahoma the area inundated would have been 3,597,000 acres, 436,000 acres, and 1,453,000 acres, respectively. The number of times inundated would have been reduced to one in most of the tributaries.

Effect of Floodwater Retarding Structures

When excessive precipitation began on April 19, 23 floodwater retarding structures had been completed in Arkansas, 195 completed in Texas, and 149 completed in Oklahoma, or a total of 367 retarding structures in the three states. The detention storage capacity of these structures was 285,181 acre-feet. Many of them filled or partially filled several times during April, May, and June. They stored temporarily and released 534,820 acre-feet of floodwater at non-damaging rates. It is estimated that if all the tributary streams in Arkansas, Oklahoma and Texas on which a feasible watershed protection program could be installed had been treated 33,150,000 acre-feet of detention storage would have been available to control 62,230,000 acre-feet of floodwater.

Ok-537-3
Ok-464-3
Te-816-8
Te-816-9

These 3 floodwater retarding structures and 11 others in the Chigley Sandy Creek watershed . . .

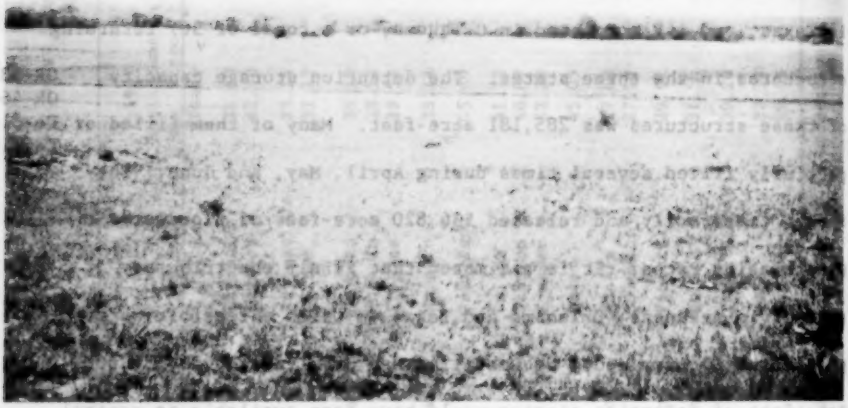


. . . prevented 6 damaging floods on this flood plain.

Most of the floodwaters caught by the upstream dams . . .

. . . were released through the outlet tube at rates the stream channels below could safely handle.

These 3 floodwater retarding structures and 11 others in the Chigley Sandy Creek watershed . . .



. . . prevented 6 damaging floods on this flood plain.

Most of the floodwaters caught by the upstream dams . . .

. . . were released through the outlet tube at rates the stream channels below could safely handle.

Of the 367 floodwater retarding structures completed only 99 had flow through the emergency spillway, and no flow exceeded 3.0 feet in depth. The spillway design storm would have produced a 4-foot depth of flow in the emergency spillway. Three emergency spillways flowed 4 times, 8 flowed 3 times, 23 flowed twice, and 65 flowed once.

Of the 53 emergency spillways which had a good vegetative cover at the time flows occurred 46 required no maintenance, 6 slight repairs, and 1 moderate repairs. Flows occurred in these spillways from 1 to 4 times, at depths up to 2.3 feet. The cost of repairing spillways with slight damage ranged from $30 to $122. The repair cost of the spillway that experienced moderate damage was $1,019.

From 1 to 4 flows, ranging up to 3.0 feet in depth, occurred in 38 emergency spillways which had a poor vegetative cover, due either to recent establishment or drouth conditions. Of these 38, no maintenance was required in 13, slight repairs in 16, moderate repairs in 6, and extensive repairs were required in 3. Maintenance costs for spillways for this group ranged from $10 to $360 for those requiring slight repairs; $530 to $1,237 for those requiring moderate repairs; and $4,298 to $8,232 for those requiring heavy repairs.

Water flowed from 1 to 2 times through 5 newly completed spillways in which vegetation had not been established. Depth of flows ranged from 1.0 to 2.2 feet. Of these 5 spillways, 1 required only slight

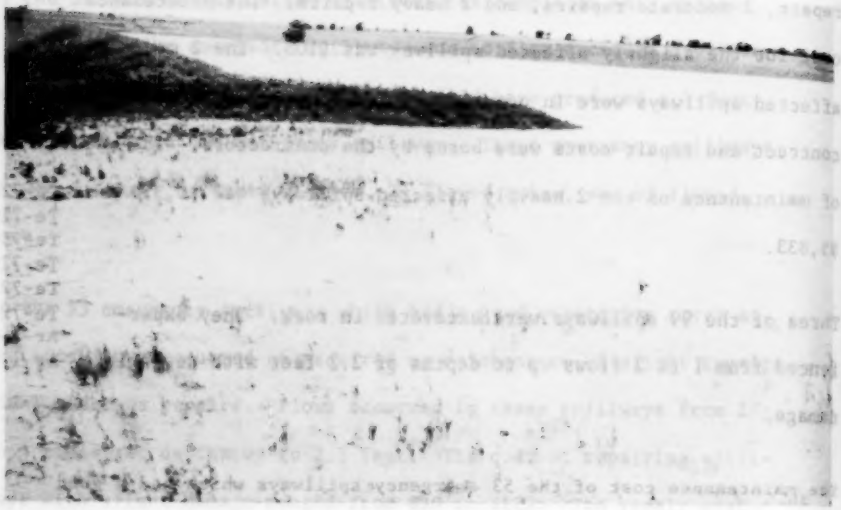
repair, 2 moderate repairs, and 2 heavy repairs. The maintenance cost for the slightly affected spillway was $108. The 2 moderately affected spillways were in connection with structures still under contract and repair costs were borne by the contractors. The cost of maintenance on the 2 heavily affected spillways was $1,510 and $5,833. Te-726-8 Te-726-7 Te-736-4 Te-725-6 Te-725-3 Te-725-4 Ar-7-4 Ar-170-8

Three of the 99 spillways were excavated in rock. They experienced from 1 to 2 flows up to depths of 2.2 feet with negligible damage.

The maintenance cost of the 53 emergency spillways which had a good vegetative cover averaged $26.63 per structure, as compared to $843.50 for the 38 with poor cover, and $1,512.60 for the unprotected spill ways.

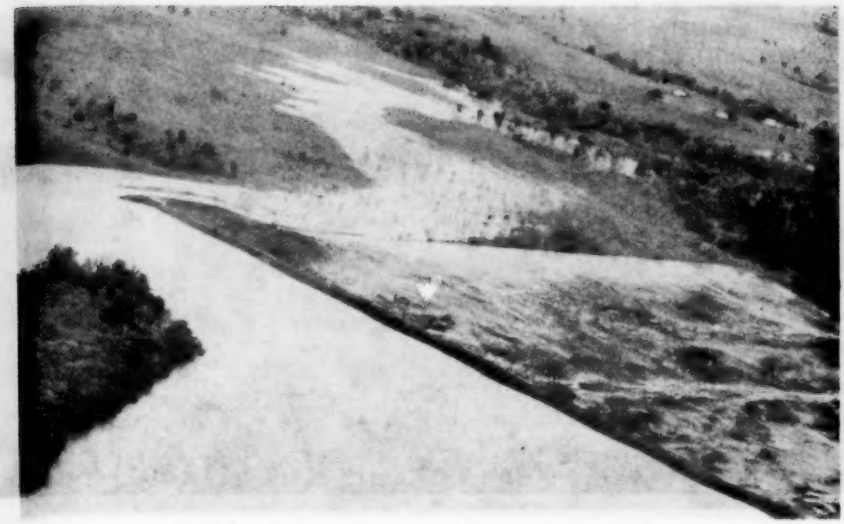
The average cost of repairs for the 99 emergency spillways which experienced flows was $414. On the basis of the 367 completed floodwater retarding structures in the storm area, the average cost of maintenance was $112. This figure closely approximates the estimated $100 to $150 average annual maintenance cost per structure used in work plan development.

46050 O—59——4



Where the emergency spillways were well vegetated . . .

. . . excess runoff was passed around the structures without damage.



Flows through the emergency spillways drifted back to the creek . . .

. . . and down the channel.

In some cases where the vegetative cover was not adequate . . .

. . . prolonged or repeated flows caused moderate erosion in the spillways.

Cleared, snagged, and enlarged stream channels . . .

. . . helped to reduce flood damages in Six Mile Creek.

II. Sedimentation and Related Damages

Sedimentation and erosion damages in the storm area included extensive sediment deposition, flood plain scour, valley trenching, streambank erosion and stream channel incision on flood plains, and sheet and gully erosion ranging from slight to very severe on watershed uplands.

Sediment Deposition

Damages resulting from deposition of sediment were widespread in the states of Texas, Oklahoma and Arkansas during the April-May-June storm period. These damages included deposition of infertile sediment on alluvial lands; damages to growing crops and pastures; filling of stream channels, causing increased flood heights; deposition in irrigation and drainage ditches; deposition on roads and in urban areas; deposition in existing reservoirs, causing loss of storage capacity; and increased turbidity in many municipal water supplies, causing increased treatment costs. Te-726-3 Te-733-10

Deposition on Flood Plain Lands

A total of 2,669,000 acres of flood plain lands were damaged as a result of deposition of infertile sediment. The deposition ranged in thickness from a few inches to several feet and in texture from clays and fine silts to coarse sands and gravel. The estimated damages ranged from 5 to 80 percent in terms of reduced productive capacity of the land. The average damage for the total acreage affected was 20 percent. In addition to this physical damage to the land, sediment damaged or destroyed several hundred Ok-726-9 Ok-495-12

Natural stream channel filled with sediment because of inadequate watershed protection.

Borrow ditch of newly constructed road nearly blocked by sediment.

Sediment deposits on cropland showing up through receding floodwaters.

Heavy sediment deposits ruined this wooded pasture.

thousand acres of growing crops and pasture grasses that would have survived the floodwater damage alone. This latter type of damage has been included in the overall crop and pasture floodwater damage.

Deposition in Irrigation and Drainage Ditches

Deposition of sediment in irrigation and drainage ditches was of moderate significance locally. In addition to the cost of removing sediment from drainage ditches in some areas, an additional damage occurred when alfalfa stands and other crops were completely lost due to the nonfunctioning of the drainage system.

Deposition on Roads

Many roads in scattered localities throughout the 3-state area were covered with sediment deposits ranging from 0.5 to 4 feet in depth. Traffic was either stopped or rerouted in several sections in central and eastern Oklahoma.

Deposition in Urban Areas

Cities and towns which suffered extensive damage from sediment deposition are too numerous to mention. Some of these affected more significantly were Enid, Pawnee, Blackwell, Stillwater, Lindsay, Pauls Valley and Waurika in Oklahoma and Fort Worth, Dallas, Wichita Falls, Abilene, Lampasas and Killeen in Texas. The cost of removal of sediment from streets, houses, stores and other buildings was very high, especially in areas where repeated flooding occurred. In the Richland Hills residential area of Fort Worth, Texas, occupants of homes flooded several times by Fossil Creek, a tributary of the

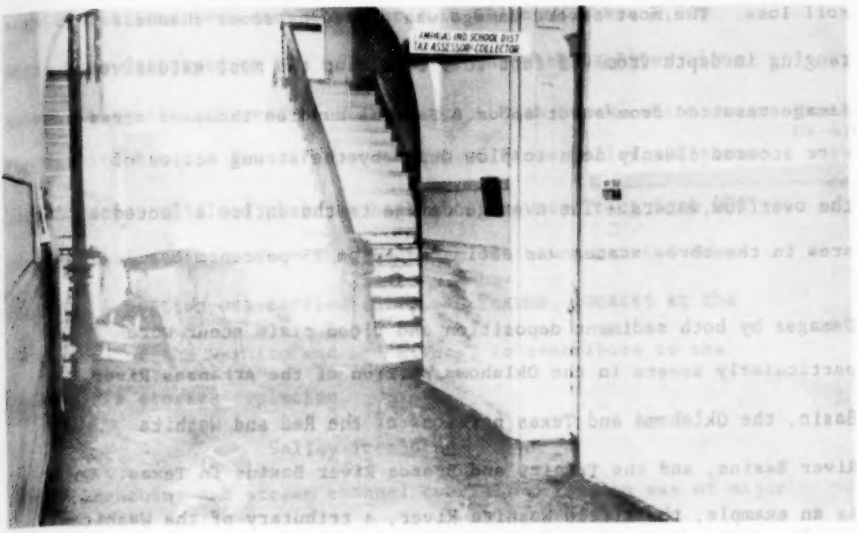
Trinity River, had the job of removing sediment deposits left by receding floodwaters on as many as five different occasions. Te-789-4 Ok-484-2

Deposition in Reservoirs

Sediment deposition in existing reservoirs was of moderate to major significance throughout those portions of the three states affected by the storms. Those reservoirs located in the areas of the higher intensity rains suffered the greater storage losses. No estimate was made of the total capacity loss in all reservoirs. Observations indicate that reservoir sedimentation was particularly severe in south central Oklahoma and central Texas. It is estimated that Belton reservoir, located on the Leon River, a tributary of the Little River in Texas, received considerably more sediment deposition during the 3-month storm period than would normally be received in a 2-year period. No watershed protection or flood prevention projects exist in the watershed above this reservoir. In contrast, Benbrook reservoir, located on the Clear Fork of the Trinity River immediately southwest of Fort Worth, Texas, is estimated to have received less than one-half of the volume of sediment expected during this type of storm occurrence. This was due to the fact that the Clear Fork watershed has a flood prevention program about two-thirds completed, including necessary land treatment measures and floodwater retarding structures.

Flood Plain Scour

The total flood plain acreage damaged by scouring action of floodwaters is estimated to be 797,000. This scour damage ranged from 10 to 90 percent in terms of reduced productive capacity resulting from



Sediment deposited in the Lampasas County Courthouse by the flood of May 12.

Extensive scour and streambank cutting in the Washita River Valley.

Trinity River, had the job of removing sediment deposits left by receding floodwaters on as many as five different occasions. Te-789-9 Ok-484-2

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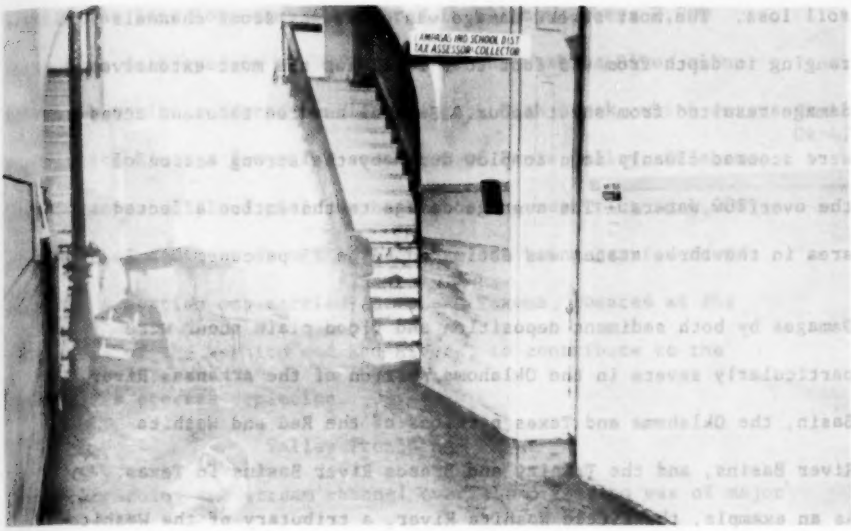


Sediment deposited in the Lampasas County Courthouse by the flood of May 12.

Extensive scour and streambank cutting in the Washita River Valley.

soil loss. The most severe damage was caused by scour channels ranging in depth from 0.5 foot to 3 feet, but the most extensive damage resulted from sheet scour. Several hundred thousand acres were scoured cleanly down to plow depth by the strong action of the overflow waters. The average damage to the entire affected area in the three states was estimated to be 25 percent.

Damages by both sediment deposition and flood plain scour were particularly severe in the Oklahoma portion of the Arkansas River Basin, the Oklahoma and Texas portions of the Red and Washita River Basins, and the Trinity and Brazos River Basins in Texas. As an example, the Little Washita River, a tributary of the Washita River in Comanchee, Caddo and Grady Counties, Oklahoma, suffered severe sediment and scour damage on 6,600 acres of its 17,000-acre flood plain area to the extent of $27,200. Castleman Creek, a tributary of the Brazos River in McLennan County, Texas, suffered sediment and scour damages on 70 percent, or 3,300 acres, of its total flood plain area, resulting in a $19,000 monetary loss.

Streambank Erosion

Streambank erosion proved to be a major item of damage. It is estimated that approximately 9,700 acres of flood plain land was destroyed in the 3-state area by this process. In addition to the complete loss of the land, much additional damage was caused by the sediment thus produced. Channel filling, flood plain deposition, road and urban deposition and reservoir silting were all appreciably increased as a result of this type of erosion damage. The most

significant land loss damage occurred in Oklahoma where 2,000 acres were destroyed on the main stem of the Washita River alone. Many tributaries suffered similar damage. Rush Creek, which enters the Washita River a few miles southeast of Pauls Valley, Oklahoma, lost 64 acres of flood plain by bank erosion, resulting in 1,200 acre-feet of sediment from this source alone being carried downstream. A portion was carried into Lake Texoma, located at the confluence of the Washita and Red Rivers, to contribute to the reservoir's storage depletion. Ok-482-6 Ok-470-10

Valley Trenching

Valley trenching and stream channel overfall migration was of major significance in localized areas, particularly in a few tributaries of the lower half of the Washita River. The primary damage resulting was the sediment produced and carried downstream to increase damages similar to those caused by bank erosion. One example of overfall migration, repeated numerous times in other localities, is Sandy Creek, a tributary of Round Creek in the lower Washita River basin. The history of this overfall, which is 25 feet wide and 6 to 10 feet deep, showed an annual headward migration of 150 feet since 1948. During one storm period in May, it moved upstream a distance of 600 feet.

Swamping

Numerous areas were left swamped on many stream valleys as a result of the frequent overflows. This damage occurred as a result of extensive sediment deposits adjacent to streams, which prevented the floodwater from re-entering the channel, and from ponding of water

Streambank erosion takes land, crops . . .

. . . utilities and improvements.

in the numerous scour channels cut by the floodwaters. All of this type of damage, both in areal extent and in monetary terms, has been included in either sediment deposition or scour damage.

Upland Erosion

Although upland erosion was widespread and considerably above normal during the 3-month storm period, it was much lower than expected. This was due primarily to three factors, (1) improvement in vegetative cover resulting from prior winter and early spring rainfall, (2) extensive winter cover crops on a large acreage of row crop land and (3) numberous sections where small grain crops were not yet harvested. Erosion on areas where recommended soil conservation practices were installed suffered minimum erosion damages. Te-726-1 Te-724-9

Sheet Erosion

During the early part of the storm period runoff and resultant upland erosion was of slight significance. As the storms continued in quick succession the runoff increased and erosion became more severe. Estimates based on field reconnaissance and rainfall intensities throughout the 3-state area indicate that 7,420,000 acres suffered severe sheet erosion, 12,840,000 acres underwent moderate sheet erosion, and 18,820,000 acres were eroded to a slight degree. Although actual erosion occurred on several million more acres during the storm period, significant physical damage was confined to the above total of approximately 39,000,000 acres.

Upland areas without conservation treatment suffered sheet erosion . . .

. . . gully erosion and sediment deposition.

Gully Erosion

Gully erosion resulted in damage to approximately 12,000,000 acres of upland area including the gullied areas and adjacent areas affected by the gullies. Severe damage occurred on 4,000,000 acres. The remaining 8,000,000 acres suffered moderate to slight damage. The gully damages were caused by (1) growth of existing active gullies (2) formation of new gullies resulting from concentrated runoff from fields or pastures, and (3) reactivation of stabilized or partially stabilized gullies. In addition to field gullying, hundreds of miles of borrow ditches adjacent to county roads were severely gullied.

Effect of Watershed Program

The effect of soil conservation, watershed protection, and flood prevention programs on reducing sediment and associated erosional damages in the 3-state area was significant, as illustrated by the following examples:

Brazos River Watershed - Texas

	Sediment Damage (flood plain)	Scour Damage (flood plain)
Green Creek (complete watershed protection program)	100 acres	100 acres
Rush Creek (no program)	5,100 acres	5,000 acres

Washita River Watershed - Oklahoma

	Sediment Damage (flood plain)	Scour Damage (flood plain)
Chigley Sandy Creek (complete flood prevention program)	50 acres	250 acres
Cherokee Sandy Creek (no program)	1,800 acres	2,300 acres

46950 O—59——5

In general, complete land treatment in upland watersheds reduced erosion and sediment yield to flood plains from 30 to 50 percent. Complete programs consisting of land treatment measures and floodwater retarding structures reduced sedimentation damages on flood plains from 70 to 90 percent.

III. Economics

Estimates of damages presented herein are confined to those sustained on creek watersheds. They do not include damages sustained on flood plains of the major rivers, except insofar as a creek might cause inundation of a common flood plain at its confluence with the parent stream.

Damage Without Watershed Protection

An appraisal of damage sustained in the 3-state area was made. In a few watersheds, flood prevention works of improvement were essentially complete. Where such works were installed estimates were made of the damage that would have occurred had there been no protection. It is estimated that the total monetary damage from the floods of April, May and June in the creek watersheds of Arkansas, Oklahoma and Texas would have approximated $159,000,000 had there been no protection table 3.

Table 3. Estimated Damage From Floods of April, May, and June, 1957, in Creek Watersheds of Arkansas, Oklahoma, and Texas Had There Been No Watershed Protection.

Type of Damage	Damage in Dollars
Crops and pasture	85,899,000
Other agricultural	17,292,000
Non-agricultural	25,592,000
Overbank deposition of sediment	5,927,000
Scour	4,601,000
Indirect	19,897,000
Total	159,208,000

Crop and pasture damage: Although less spectacular than many items of damage, the loss of crop and pasture production accounted for over half of the monetary damage. This occurred despite downward adjustments in the estimated yields that would have been obtained had there been no flooding. In many areas, such as eastern Oklahoma, long-continued precipitation and lack of sunshine hindered the maturing of small grain crops and made harvesting difficult, even in upland areas. Therefore the full normal value of damaged crops on most flooded areas was not charged as a flood loss even though 100 percent damage might have occurred.

Among the crop damages sustained were the loss of crops in the field, delay in planting spring crops - in many cases so long that even the possibility of successful "catch" crops had vanished, loss of stands of such perennial crops as alfalfa, etc. Also included in flood damage is the loss of this year's crop by silting and sediment deposition.

Te-725-1
Te-725-1

Many creek tributaries flooded so frequently and so constantly that bottom land pastures could not be utilized for periods of 45 days or more.

Other agricultural floodwater damage; This group of damages included loss of fences, livestock and stored crops, and damage to farm improvements and equipment. As an example, 91 farm homes were flooded on Black Bear and Red Rock Creeks in central Oklahoma. The sequence of frequent heavy flooding prevented repair of fences and kept livestock

Uncontrolled floodwaters damaged crops, delayed replanting . . .

. . . flooded pastures, covered vegetation with silt, and destroyed fences.

from returning to bottom land pastures. As a result the damage was considerably less than it would have been had the length of time between individual floods been greater. Nevertheless, this group of damages exceeded 10 percent of the total damage.

Non-agricultural damage: Damages to non-agricultural property were exceeded in monetary value only by crop and pasture damage. They were over 15 percent of all damages. Included in this group were damages to urban areas, transportation facilities, industrial property, and levees.

The most severe concentration of damage was at Lampasas, Texas. Here floodwaters from Sulphur Creek covered 68 city blocks, causing total destruction to 50 homes. An additional 100 homes were severely damaged. Some damage was suffered by another 280 residences. Major damage was sustained by 168 business and industrial firms. An appraisal team made up of personnel from the Corps of Engineers and the Soil Conservation Service estimated the direct damage to urban residences, commercial, industrial, and similar property to be about $4,850,000.

Te-789-1
Te-789-7
Te-789-10
Te-789-4
Te-789-5
Te-789-6
Ok-471-1
Ok-471-10

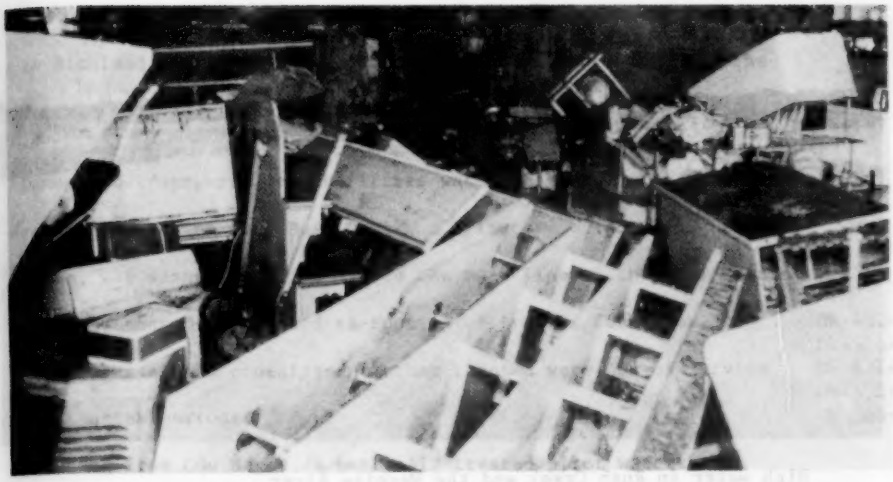
Enid, Oklahoma, was reported to have received damages exceeding $1,000,000. The damage at Stillwater was estimated at $750,000. More than 50 houses in the unincorporated city of Dover, Oklahoma, were flooded to depths up to 8 feet by water from Turkey Creek. Major damage was also sustained in Killeen, Wichita Falls, and Abilene, Texas, and Blackwell and Waurika, Oklahoma. Numerous other cities and towns in the 3-state area suffered severe damage. Not included in the evaluation

During the Lampasas flood these homes were window-deep in water

. . . the wool warehouse was moved from its foundation . . .

. . . many business houses were flooded, including the People's National Bank and . . .

. . . the White Auto Store . . .



. . . their contents jumbled by the swirling water.

The dirty and costly job of cleaning up by Lampasas followed the receding floodwaters.

High water in Rush Creek and the Washita River . . .

. . . caused flooding in Pauls Valley, Oklahoma, located at the junction of these two streams.

are damages such as those to Bartlesville by the Caney River or to Richland Hills and other communities around Fort Worth by the West Fork of the Trinity River and tributary creeks.

Damage to transportation facilities was widespread. The Cotton Belt railroad crossing over Rush Creek, a tributary of Richland Creek, Texas, was washed out. Damage to the main line of the Rock Island railroad near Dover forced re-routing of traffic for seven days. Ok-482-9 Ok-536-4 Numerous railroad crossings of other streams were out of service Ok-471-11 Ok-482-1 for shorter periods. Ok-536-2

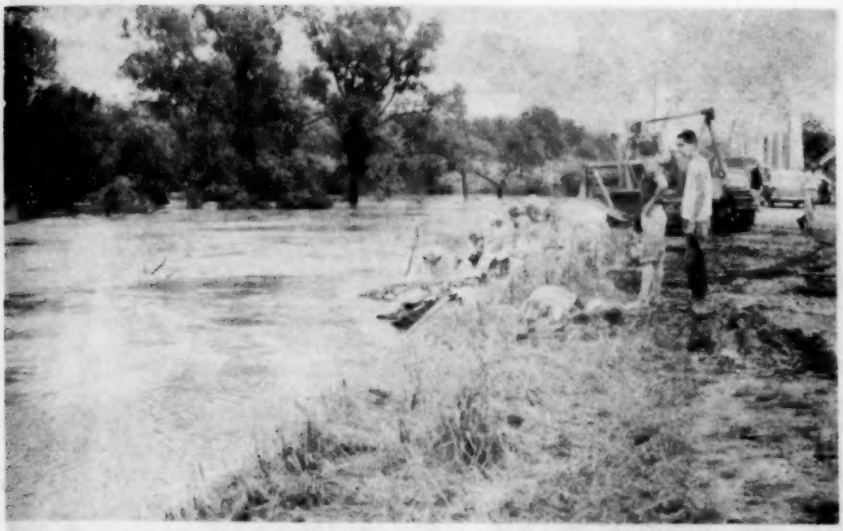
Flooding from Cow Bayou, a partially treated pilot watershed, washed out a bridge on U. S. Highway 77 below Waco, Texas, and closed the highway for several weeks. Approaches to a bridge on the same highway north of Ardmore, Oklahoma, were washed out by Caddo Creek floodwaters, closing this section of the road for 3 weeks. This highway was also closed north of Perry, Oklahoma, for short periods by Black Bear and Red Rock Creeks.

U. S. Highway 81 south of Chickasha, Oklahoma, was closed by water from the Little Washita River on 4 different occasions. This highway was seriously damaged by Turkey Creek near Dover and traffic was suspended for several weeks.

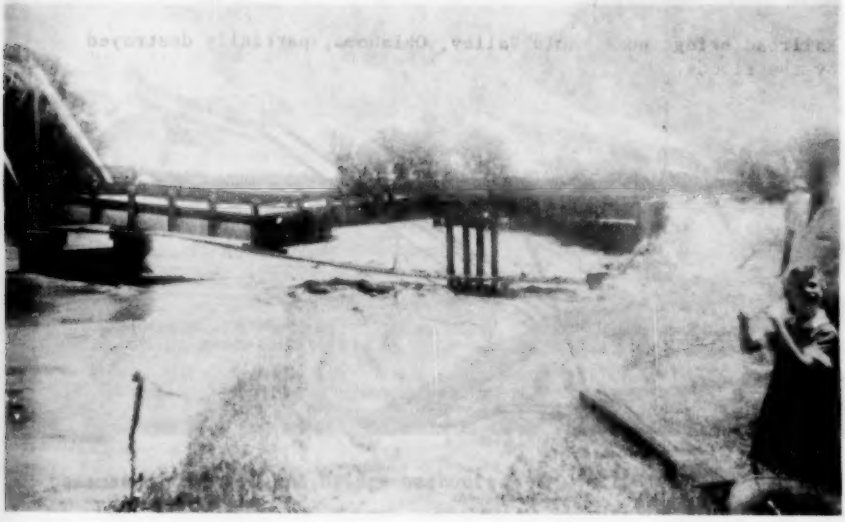
A great number of country roads over the entire area were closed because of flooding and washouts of bridges and fills. Direct Te-725-1 travel from one point to another became the exception rather than Ok-515-10 the rule.

U. S. Highway 77 being undermined by bank cutting . . .

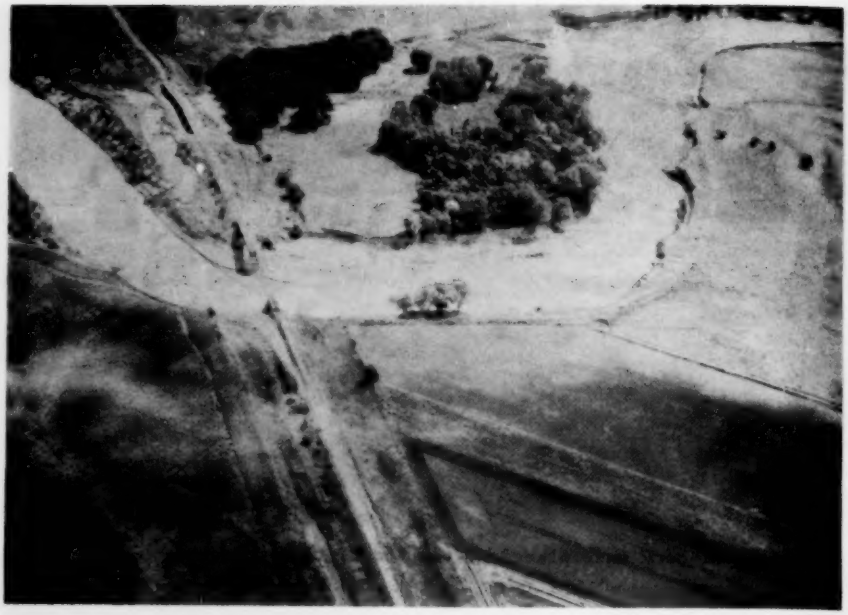
. . . making it necessary to rebuild the road after the floodwater receded.



500 loads of rock were placed at the end of this bridge . . .

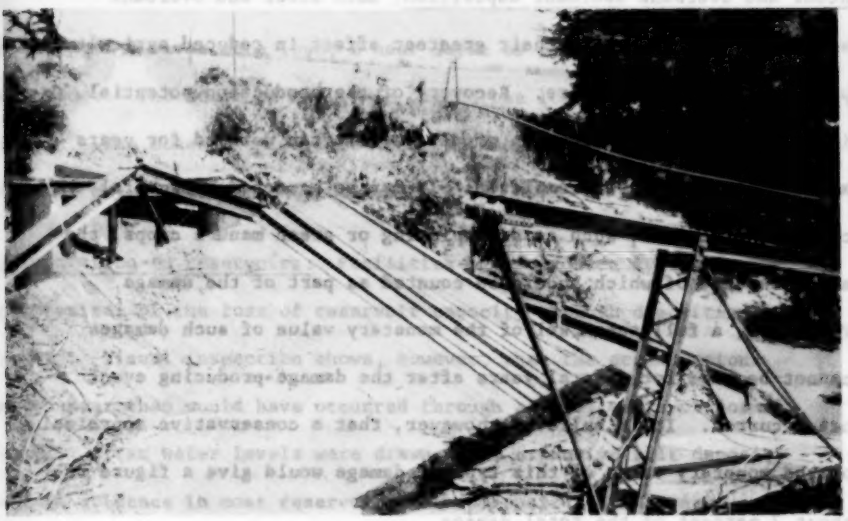


. . . to keep this from happening.



Railroad bridge near Pauls Valley, Oklahoma, partially destroyed by the floods.

Traffic was closed on hundreds of county roads . . .



. . . because of culvert and bridge washouts.

The results of a survey of oil field installations and pipelines in Garvin County, Oklahoma, illustrate the damage to industrial installations. In this county alone, damage to property of this type was estimated at $588,000.

Levees, whether built by farmers or by local levee districts often proved inadequate. Damage of this type was sustained in such widely scattered areas as Chambers Creek near Corsicana, Texas, and the Little Washita River near Chickasha. Such breaks usually resulted in double damage; the cost of repairs to the levee, plus the damage to nearby lands through excessive scouring or deposition of sediment.

Scour and Overbank sediment deposition: Both scour and overbank sediment deposition have their greatest effect in reduced agricultural production in future years. Recovery of the production potential in areas damaged by these two processes is often delayed for years and sometimes is never completed. It may be hastened by special cultural practices, such as deep plowing or green manure crops; the extra expense of which should be counted as part of the damage. Therefore, a full appraisal of the monetary value of such damages cannot be made for several years after the damage-producing event has occurred. It is believed, however, that a conservative appraisal of the monetary value of this type of damage would give a figure of about 7 percent of the total damage.

Indirect damage: Included in indirect damage are such flood costs as re-routing of traffic, rescue work, immediate loss of business,

increased cost of water treatment, emergency health and sanitation measures, and similar costs or damages that may have been sustained. It is estimated that these damages approached $20,000,000 for the 3-state area. This is approximately 12 percent of the total.

Loss of life: There were at least 10 lives lost in creek watershed flooding in Texas. Four people were drowned at Lampasas in the storm of May 12 and one life was lost at Gunderland Park about 2 miles below Lampasas in the Sulphur Creek floodwater. The flood of April 23-24 on Nolan Creek took 3 lives. Two people were drowned in the Cow Bayou watershed storm of May 11, when their car washed off the highway. Te-732-5

In Oklahoma 4 lives were lost; 2 near Sayre as a result of a washed out bridge. The storm of May 17-18 caused the loss of a life near Lindsay. The other loss of life occurred near Dover from the storm of May 15-16 on Turkey Creek.

Sedimentation in reservoirs: Facilities have not been available for an appraisal of the loss of reservoir capacity through deposition of silt. Visual inspection shows, however, that the accumulation was greater than would have occurred through several years of normal runoff. After water levels were drawn down, extensive silt deposits were in evidence in most reservoirs. This consitutes a serious damage, both because of the expenses of reservoir construction and the scarcity of suitable replacement sites when present capacity is depleted.

46950 O—59——6

Typical scene along Nolan Creek near Killeen, Texas, where numerous families lived in trailer courts. Three lives were lost here.

Effect of Existing Works of Improvement

A total of 367 floodwater retarding structures (23 in Arkansas, 149 in Oklahoma, and 195 in Texas) were in operation during the storm period. Most of these, 278 in all, were in the Washita and Trinity River watersheds. These structures with accompanying channel improvement reduced the damages in the creek watersheds by about $2,162,000, table 4.

Table 4. Effect of Existing and Potential Works of Improvement on Damage from Floods of April, May, and June 1957, in Creek Watersheds of Arkansas, Oklahoma and Texas.

State	Estimated Damage in Dollars		
	With no watershed protection	With existing watershed protection	With complete watershed protection
Arkansas	7,565,000	7,547,000	3,507,000
Oklahoma	67,191,000	66,360,000	20,047,000
Texas	84,452,000	83,139,000	26,334,000
Total	159,208,000	157,046,000	49,888,000

Although in many areas the rains were so intense and prolonged that the floodwater retarding structures discharged through the emergency spillways, they still afforded a considerable degree of protection.

Chigley Sandy and Kickapoo Sandy Creeks drain adjacent watersheds in the Washita River watershed. Kickapoo Sandy is an untreated watershed with a drainage area of 41,262 acres and 4,500 acres of flood plain. Chigley Sandy watershed, with 14 floodwater retarding structures in operation, has a drainage area of 29,349 acres with 3,354 acres of flood plain. Five storms, with rainfall ranging from 2.5 to 9 inches

in 36 hours, occurred in this watershed during the three months. Although water was discharged through the emergency spillways on 11 of the structures, the total flooding in the Chigley Sandy Creek watershed was 94 acres. Residents estimated that they would have been flooded at least 4 times had the structure not been in place. Flood damages amounted to $4,700 during April, May and June. Data used in developing the work plan on Chigley Sandy Creek indicate a damage of about $107,000 would have occurred had there been no works of improvement.

Rainfall of approximately equal intensity occurred on Kickapoo Sandy Creek and caused 3 major floods. In addition to major damages within the watershed, this stream twice closed U. S. Highway 77. The damages were appraised at $122,000. Had a flood prevention program been in effect, it is estimated that the damages would have been only $24,000.

Table 5 shows a comparison of the damages in the two watersheds.

Table 5. Comparison of Damages from the Storms of April, May and June in Chigley Sandy and Kickapoo Sandy Watersheds

Item	Damage in: Chigley Sandy Watershed	Kickapoo Sandy Watershed
Crops and pasture	$2,700	$49,000
Other agricultural	600	19,000
Non-agricultural	600	17,000
Sediment and scour	200	8,000
Indirect	600	29,000
Total	$4,700	$122,000

Barnitz Creek in Oklahoma, with 54 completed floodwater retarding structures, experienced 4 storms that would have produced flooding had there been no structures. No flooding and no damage occurred in this 178,674-acre watershed. Beaver Creek, an adjacent 56,088-acre watershed, had flooding on 1,045 acres, causing about $16,000 damage.

A third comparison shows Sandstone Creek had 370 acres flooded (8 percent of the flood plain) by the storm of April 18. The total damage was $1,650. There are 24 floodwater retarding structures in operation on Sandstone Creek. Elk Creek, an adjacent watershed with no flood prevention program, had 4,880 acres flooded (80 percent of the flood plain) by the same storm. This flood caused U. S. Highway 66 to be closed for 4 hours and did about $78,600 damage.

Similar comparisons can be made on watersheds in Texas. On Green Creek, a pilot watershed on which a watershed protection program has been installed, the storm of April 26 flooded 489 acres, approximately 10 percent of the flood plain. A second flood occurred about a month later. Total damages were about $6,000. Rush Creek, approximately 25 miles west, had 12,000 acres flooded by each of the same storms with about $493,000 damage. Six major county bridges were destroyed and the school plant at Sidney was badly damaged. One class room building was washed from its foundation and the superintendent's home was completely destroyed. Part

of the differences in damage shown in table 6 is due to the larger size of the Rush Creek watershed and flood plain and to the somewhat greater intensity of precipitation there, but a large share, probably at least $50,000, is due to the watershed program in operation on Green Creek.

Table 6. Comparison of Damage from the Storm of April, May and June in Green and Rush Creek Watersheds of the Brazos River Watershed, Texas

Damage Item	Damage in: Green Creek Watershed	Rush Creek Watershed
Crops and pasture	$4,800	$156,000
Other agricultural	500	135,000
Non-agricultural	0	54,000
Flood plain scour	100	58,000
Overbank sediment deposition	100	45,000
Indirect	500	45,000
Total	$6,000	$493,000

Six Mile Creek in Arkansas is one of the pilot watersheds which have been instrumented to study the effects of watershed protection and flood prevention projects. At the beginning of this storm period more than 60 percent of the planned land treatment measures had been installed and 23 of the 26 planned floodwater retarding structures had been completed.

Stream gage No. 3 is located downstream from 13 of the floodwater retarding structures on Six Mile Creek. These 13 structures receive

the runoff from nearly 50 percent of the 102 square miles of drainage area above the gage.

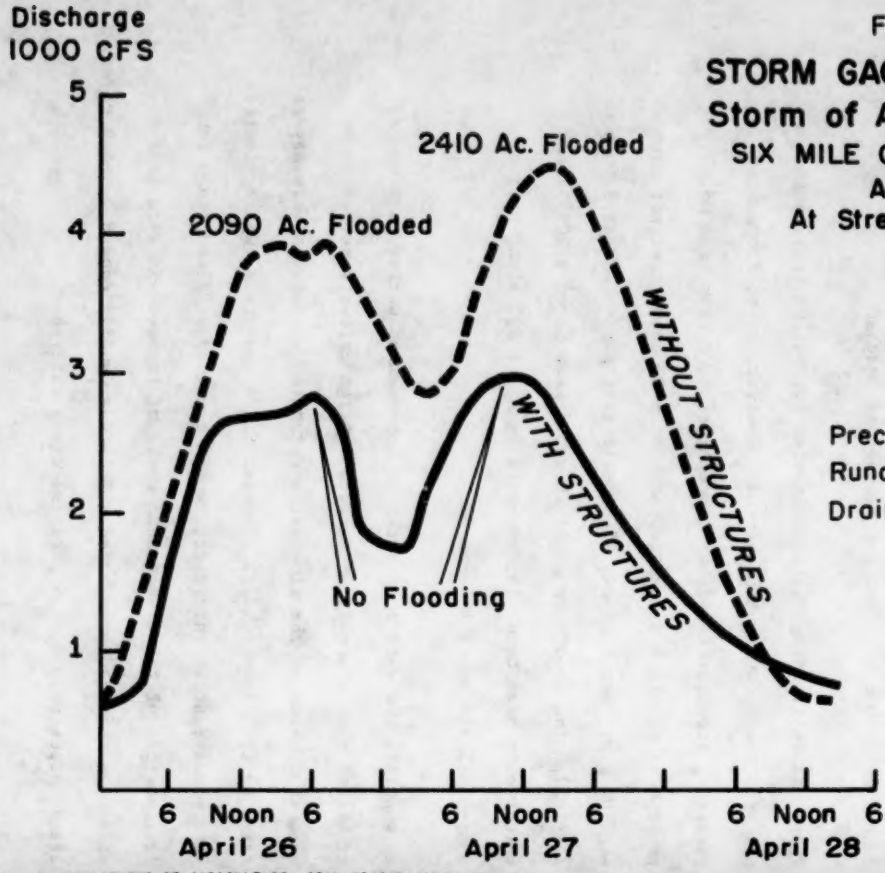
Following the rainfall on April 26 (shown by the recording rain gage on Site 6 at 2.4 inches) Stream Gage No. 3 recorded a peak discharge of 2850 cubic feet per second at 6:00 p.m. that day. At 11:00 a.m. the following day, when an additional 2 inches had been recorded, a peak of 2970 cubic feet per second was reached.

There was no flooding on the main stem nor on the tributaries of Six Mile Creek during this period. However, if no floodwater retarding structures had been in operation, Stream Gage No. 3 would have recorded discharge peaks of 3900 cubic feet per second at 7:00 p.m. April 26 and 4500 cubic feet per second at 3:00 p.m. April 27. The runoff on April 26 would have flooded 2090 acres which would have been flooded again on April 27, along with an additional 320 acres (Figure 6).

In general, the watershed works of improvement worked as good as, or better than planned. Structural design criteria proved to be adequate. None of the floodwater retarding structures were severely taxed by the heavy runoff. However, in a few areas, where treated watersheds emptied into rivers which remained at flood stage for long periods of time, watershed works of improvement were less effective than had been hoped. This was usually caused by high river stages blocking drainage from the creek watershed.

Figure 6

STORM GAGE HYDROGRAPHS
Storm of April 26-27, 1957
SIX MILE CREEK WATERSHED
ARKANSAS
At Stream Gage No. 3



Precipitation 2.92 Inches
Runoff 2.09 Inches
Drainage Area 102 Sq. Mi.

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

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One example is the Lower East Fork Laterals watershed of the Trinity. Here an area of approximately 11,600 acres, known as the Rosser Levee Area, has been leveed off from the East Fork of the Trinity River. Watershed works of improvement consisted of 12 floodwater retarding structures plus a hillside diversion to carry the release rate from the structures and the uncontrolled runoff around the leveed area. These works were designed to give the leveed area complete protection against storms of the size and intensity received except for about 2,000 acres that would be inundated temporarily by internal runoff before the water could escape into the Trinity River through flood gates in the river levee. The watershed works of improvement functioned as planned, but high water in the East Fork broke the river levees and flooded almost the entire area with water from the river.

In addition to the benefits listed in table 4, it is estimated that the 14 floodwater retarding structures in operation on Honey Creek, a tributary of the East Fork of the Trinity, reduced sediment damages to Lavon Reservoir by $3,000. It is estimated also that the 23 structures on the Clear Fork of the Trinity reduced sediment damage to Lake Weatherford and Benbrook Reservoir by about $40,000. The effectiveness of these works is illustrated by the fact that after the storm period, Benbrook was described as the "only clear water lake in Tarrant County."

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

Benefits From a Complete Program

The degree of control obtained on treated and planned watersheds and its effects on flood damages were analyzed to determine the probable effects of a complete watershed treatment program on the entire 3-state storm area. It was estimated that such a program would have reduced the total damage from $159,208,000 to $49,888,000, table 4. This would represent a benefit of $109,320,000.

In addition, it appears that flood peaks would have been reduced sufficiently to have prevented the loss of the 14 lives that occurred.

No estimate has been made of the effect of such a program on main stem flooding and flood damages. It seems probable, though, that retardation of flood peaks upstream might have had considerable effect on main stem flooding in many areas.

Mr. DONALD WILLIAMS. I shall now turn to the provisions of the Watershed Act.

The legislative history of the Watershed Protection and Flood Prevention Act makes it clear that the program of work authorized by the act should fill a gap between the flood control program on the major rivers of the Nation carried out by the Corps of Engineers and the soil conservation program on individual farms and forests carried out by the Department of Agriculture.

This act is distinctive in that it makes specific provision that projects developed and carried out shall be local projects rather than Federal projects. This is a highly important feature as it assures that the citizenry through their local governmental units assume program responsibility. It is based upon the same principle as are soil conservation districts. The Federal Government is authorized to assist, but not to control, these projects. The projects cannot exceed 250,000 acres in size. The initiative for all projects must come from legally authorized local organizations. Before any actual construction work can be done on a project, a local organization that has authority under State law to carry out, maintain, and operate the works of improvement must enter into agreement with the Department of Agriculture to carry out these functions. All contracts for works of improvement, except on Federal land, must be awarded and administered by local organiaztions. As defined in the act, the local organization may be a county or other political subdivision of the State, a soil conservation district or water conservation district, a flood prevention or control district, or any similar official organization, or any combination of them, including the State government.

The local organization which sponsors a watershed project must, under provisions of Public Law 566—

(1) Acquire all land, easements, and rights-of-way that may be necessary;

(2) Must assume its proportionate share of the cost; and

(3) Maintain and operate the improvements after they have been installed.

It must provide assurance that landowners or water users have acquired the necessary water rights and must obtain agreements from the owners of at least 50 percent of the land above each retention reservoir to carry out recommended soil conservation measures.

PURPOSES AUTHORIZED UNDER THE ACT

The act authorizes assistance for works of improvement for the following purposes: Flood prevention, agricultural water management, and nonagricultural water management, including fish and wildlife development.

Works of improvement for flood prevention are defined as measures installed for the purpose of reducing damage from floodwater, sediment, and erosion. The effects of these measures are to reduce loss of life, property, services, and other private and public values, and to increase the productivity or enhance the value of land by reducing flood hazards.

Agricultural water management measures include those that are intended primarily to make more efficient use of land and water for agricultural purposes. This includes drainage installed for the pur-

pose of lowering the water level on land that under natural conditions is too wet for efficient and sustained agricultural use. It includes irrigation facilities including water supply reservoirs, diversion dams, pumping plants, and distribution systems, which may be installed to serve a group of landowners.

Other agricultural water management measures may include the stabilization of annual streamflow, the recharge of groundwater reservoirs, and water supply systems for livestock water, crop spraying, rural community use, or other similar agricultural uses.

Nonagricultural water management measures include measures for improving the habitat for fish and wildlife, including storage capacity in reservoirs or the modification of reservoir structures, stream channel improvements, and improvements of marshes and other surface water developments. Other nonagricultural water measures may include storage of water in reservoirs or recharge of ground water for municipal and industrial uses, streamflow regulation to abate pollution, or storage of water for recreational purposes. Under the Watershed Act the Federal Government cannot pay any part of the cost for engineering services or construction of such measures for nonagricultural purposes other than for fish and wildlife. However, these nonagricultural water-management measures are eligible for inclusion in a watershed work plan and have found a sound and practical application in several of the watershed projects to date.

FINANCIAL ASSISTANCE AND RELATIONSHIP OF BENEFITS TO COSTS

Watershed projects must be physically and economically justified in the same manner as other water resources programs in which there is Federal participation. The Soil Conservation Service uses procedures and methods comparable to those used by the Corps of Engineers and the Bureau of Reclamation in formulating and evaluating projects and in allocating costs. These procedures and methods are outlined in the Bureau of the Budget Circular A–47, and in standards developed by interagency efforts of Federal departments.

Under amendments to Public Law 566 which were passed in 1956, all costs for construction and engineering services for flood prevention purposes are borne by the Federal Government. The local organization, as mentioned previously, carries all of the costs for providing any necessary easements and rights-of-way, provides for the operation and maintenance of any flood prevention installations, and administers all contracts on non-Federal land.

Financial assistance on all agricultural water management measures is calculated under the general provisions of the act that costs borne by the local organization shall be on the basis of the relationship between the direct identifiable local benefits to the total benefits of such measures. In actual practice this is working out in the ratio of about 45 percent Federal and 55 percent local contribution to installation costs.

Costs for installing land treatment measures for watershed protection are borne entirely by the landowners at no cost to watershed project funds, except that some acceleration in technical services is provided to assure that the land-treatment phases keep abreast or precede the installation of structural measures. The costs of land-treatment measures installed primarily but not exclusively for flood

prevention are shared on the same basis as in existing national programs.

Financial assistance on fish and wildlife improvement measures has been set at 50 percent Federal and 50 percent local for installation costs charged to fish and wildlife development purposes. No effort is made to calculate the benefits from fish and wildlife measures on the assumption that benefits equal costs whenever the local organizations have agreed to supply at least 50 percent of the installation cost.

As indicated previously, no Federal funds are contributed to municipal and industrial water supply, or for pollution abatement and streamflow regulation for nonagricultural purposes. Loans are available, however, to assist in meeting such costs.

REVIEWING AND APPROVING THE WORK PLAN

When the local organization and the Soil Conservation Service, acting for the Secretary of Agriculture, have tentatively agreed on a watershed work plan, all other State and Federal agencies with a direct interest or responsibility in the project are given an opportunity to review and comment on the plan. Any changes suggested by these agencies are discussed with the local organizations. If the local organization and the Soil Conservation Service agree, the changes are made in the work plan. The completed work plan then goes to the Soil Conservation Service in Washington for review and approval. At the same time a copy is sent to the Governor of the State for review and comment.

At this point, the work plan may be approved by the Administrator of the Soil Conservation Service provided the work plan does not include any single structure having more than 2,500 acre-feet of capacity, and providing that the Federal share of the estimated construction cost does not exceed $250,000. Based on the Administrator's approval, work can begin at once if funds are available.

Watershed work plans for larger projects must be sent to the Congress for review and approval of congressional committees. If the work plan includes a structure having a capacity of more than 2,500 acre-feet and less than 4,000 acre-feet, or if the Federal share of the estimated construction cost exceeds $250,000, the work plan must be reviewed by interested Federal agencies at the Washington level, and must be approved by the Committees on Agriculture of the House and the Senate. Any work plans proposing a structure having a capacity of more than 4,000 acre-feet must be approved by the Public Works Committees of the House and Senate, instead of the Committees on Agriculture.

Of the 154 work plans approved under the described procedures as of April 1, 85 have been administratively approved, 53 have been approved by the House and Senate Agricultural Committees, and 16 by the House and Senate Public Works Committees.

INSTALLING THE WORKS OF IMPROVEMENT

Federal funds for providing the technical and financial assistance agreed upon in the watershed work plan are provided to the Department of Agriculture by the Congress through an annual, available-until-expended appropriation. Since the Federal funds are made available for local organizations to carry out these projects, and since

the actual control in the timing of use of funds rests more nearly in the hands of local organizations than in the hands of the Federal agency, this program takes on more nearly the aspects of a grant-in-aid program than a public works program. Each local organization is, of course, confronted with the problem of getting in hand its own funds and services as provided for in the work plan. It is also confronted with a problem of securing at the right time the necessary land, easements and rights-of-way which are required before construction can begin and before construction funds can be made available to the local organization for awarding contracts.

After a project has been approved and funds are made available for construction and installation, the Soil Conservation Service and the State forestry agency (acting for the U.S. Forest Service) immediately provide to the local organization technical assistance necessary to accelerate the application of land treatment measures by individual landowners on the watershed. In addition, the Soil Conversation Service provides for engineering services to make detailed surveys and designs for structural measures included in the work plan. Final engineering designs are made available to the local organization as a basis for their awarding of contracts. The local organization issues the invitation to bid and awards the final construction contracts. Throughout the contract preparation and construction period, the Soil Conservation Service may provide the local organization with engineering and other services if requested to do so. Such Federal engineering and other services are limited to flood prevention, agricultural water management, and fish and wildlife purposes. Local organizations are required to provide all engineering services for nonagricultural water structures such as municipal and industrial water supply and pollution abatement structures.

FLOOD PREVENTION OBJECTIVES

It has been estimated that half or more of the flood damage experienced by the Nation occurs in the tributaries of the rivers upstream from the main stem. One of the principal purposes, therefore, of the Watershed Act is to contribute to the reduction of flood damages on these tributary areas. The basic objective of the watershed approach is to begin the application of controls and sound water management together with sound land management on the watershed lands where the precipitation first falls.

It is the objective of a small watershed project to provide an adequate level of flood protection to all parts of the flood plain consistent with economic justification. While watershed projects are primarily concerned with the protection and improvement of agricultural lands, the smaller flood plains are crisscrossed with roads and railroads and are occupied by smaller cities and towns and industrial developments. We find, therefore, that in addition to the agricultural benefits there are substantial benefits from reduction of flood and sediment damages to roads, railroads, bridges, utilities, and urban and industrial developments, depending on the nature of developments within the watershed.

COORDINATION WITH OTHER PROGRAMS

There has been a continuing effort, and we believe a successful one, to coordinate the engineering and other technical standards of the Soil Conservation Service with those of the Corps of Engineers, the Bureau of Reclamation, and other agencies. We are constantly reviewing and improving these standards as both Government and private agencies gain experience in this work. We believe there are no major differences in standards and criteria now being used by Federal agencies.

Procedures have been established to effectuate maximum coordination in the collection and interpretation of basic data in the fields of hydrology, sedimentation, and economic evaluation. Procedures are in effect which provide for the review of all work plans or project plans by all interested agencies of the Federal Government. All concerned agencies are notified when a survey of investigation of work plan development is to be initiated. Agencies with a direct concern are given an opportunity to participate and contribute to the preparation of the watershed work plan to assure that the works of improvement include provisions that are compatible with the programs of the other agencies. Drafts of work plans are reviewed informally with field representatives of other Federal agencies and those plans that are transmitted to Congress are transmitted to the heads of the various agencies for review and comment prior to their submission to Congress. Every effort is made to keep all agencies informed of the initiation of planning and the completion of watershed work plans and to give them an adequate opportunity to judge each project in relation to the work contemplated by each agency.

Within recent months the Corps of Engineers and the Soil Conservation Service have agreed on a guide to be used by our field representatives in deciding on applications of local organizations for assistance on projects to reduce flood damage in urban areas. We found that an agreement was needed on such a guide since both the Corps of Engineers and the Soil Conservation Service have authorities to provide services to local organizations for reducing flood damage in urban areas. This agreement recognizes that in many instances it will be desirable that the Soil Conservation Service and the Corps of Engineers participate jointly with local organizations in the preparation of plans and in reaching decisions about which agency can most efficiently carry out the necessary works of improvement.

Another matter that has been under discussion by the Department of Agriculture, Department of the Army, and Bureau of the Budget, has been the matter of sharing costs on benefits that arise from "land enhancement." This term "land enhancement" is generally considered to be the increased values in flood plain land that result from reducing the occurrence of overflow and sediment deposit. In the watershed projects we do not use the nature and kind of benefits from flood-prevention installations as a basis for calculating the share of costs that will be borne by the Federal Government or the local organizations. This position has been fully supported by the Bureau of the Budget. The act is quite specific that all of the construction costs of flood-prevention measures shall be borne by the Federal Government.

ASSURANCE OF CONTINUED STATE AND LOCAL PARTICIPATION

State governments and legislatures have taken specific action to enable effective State and local participation in the watershed program. Up to January 1, 1959, the legislatures of 37 States have enacted 80 separate pieces of State legislation to provide State and local organizations with the necessary authority and finances to cooperate with the Federal Government under the provisions of the act. Additional new legislation or amending legislation is being enacted or is under consideration by State legislatures which have been in session since January 1, 1959. When the Watershed Act was passed in 1954, very few States then had enabling legislation under which local organizations could assume the full obligations required. Fortunately, all States had soil conservation district enabling acts. As a matter of fact, soil conservation districts have acted as the principal local sponsoring organization or the cosponsors of practically all watershed projects. But most State soil conservation district laws did not provide all the authorities needed to assume full responsibility for financing, operating, and maintaining the projects. Many States have since amended laws to enable these soil conservation districts to assume all responsibilities required of a local sponsoring organization. Other States have passed new legislation or have amended existing legislation to provide special flood control or watershed districts with necessary authority to finance and administer watershed projects.

Some States and local organizations have shown a determination to move ahead in solving their local watershed problems more rapidly than Federal technical facilities were available to assist in developing watershed work plans. During fiscal year 1959, eight States have made available more than $600,000 to augment the available planning funds of the Soil Conservation Service. Almost $1.5 million of State and local funds have been provided under cooperative arrangements with the Soil Conservation Service for this purpose since the inception of the program in 1954.

We believe the watershed program is soundly conceived and that it will continue to be an integral part of the Nation's program of conservation, development, and efficient use of the land and water resources.

Now with your permission, Mr. Chairman, I would like to ask Mr. Carl Brown of my staff to present some maps and charts and a discussion of a particular watershed. This would illustrate many of the points I have endeavored to bring to your attention.

Mr. SMITH. All right, sir. We will be glad to have that map.

Mr. BROWN. Mr. Chairman, we have here a map of a typical small watershed developed under this program. This is the Jennings Creek watershed, located in Jackson, Clay, and Macon Counties in Tennessee, in the Cumberland River Basin. This is in the watershed area above the Carthage or what will be known as the Cordell Hull project, which was authorized, I believe, in 1946, and on which some preliminary planning has been done by the Corps of Engineers, but which is not yet in a construction status.

This project has a total watershed area of 46,150 acres. It has been sponsored by the soil conservation districts of the three counties involved—Jackson, Clay, and Macon Counties—and by the Jennings Creek Watershed District, which was organized under the Watershed District Act of Tennessee, which permits the formation of

districts having legal powers of taxation, issuance of bonds, making of assessments, and powers of eminent domain, and those governmental powers usually associated with local special-purpose districts.

This has been a watershed area of extremely critical flood problems. It is in a relatively poor agricultural area and the values in this watershed are peculiarly concentrated in the comparatively small flood plain area. In 1946 there was a major flood in this watershed in which six people lost their lives in the flooded area, a number of houses were washed away, schools, churches, banks, roads, and bridges were damaged, and crop losses were almost complete.

There were additional floods of major magnitude in April 1947, and again in June 1948, and again in June 1950.

There are at the present time, despite the extensive and frequent flooding that has occurred in this green area of the flood plain—there are now located in the flood plain 14 farm residences. In addition to the farms there are four schools, one bank, four churches, five sawmills, and five stores. The total area subject to flooding by a flood of the 1946 magnitude is 2,112 acres.

The average annual area flooded here is about 1,835 acres. Flooding occurs in this flood plain area on an average of twice a year. The average annual flood damages as calculated by the economists of the Soil Conservation Service in carrying out the investigations to develop this work plan, amount to a total of $153,691 annually, of which $54,804 are annual crop and pasture damages, and $5,354 other agricultural damages, such as fences.

There is an annual damage to homes and buildings of $23,271; to roads and bridges crossing the flood plain, $19,131; and other miscellaneous damage of $11,631.

In addition, the lands of the flood plain area are subject to frequent scour, destroying or impairing the soil resource to the extent of an estimated $14,328 annually, and there is damage from sediment overwash, gravel, and sand, also impairing the productivity of the land, amounting to $11,200 annually.

Nearly all of the flood plain land in this watershed which is not in houses or buildings of some kind is in crop production. The area in the flood plain contains 60 percent of the total cropland in this watershed and is essential to the agricultural economy of this area. It is entirely an agricultural area.

For the watershed as a whole, there are 458 farms having an average size of 101 acres and an estimated average value with improvements of $11,500.

In terms of the land use for the watershed as a whole, in contrast with the flood plain, 65 percent of the land is in woodland. More than half of it is classified as in very poor and nonproductive condition. Only 9 percent of the total watershed area is in cropland; 22 percent of the area is in grassland; 90 percent of the farms in this area are owner-operated.

This is an area of small, individual landowners and operators. The principal crops in the area are burley tobacco, which is the principal cash crop, the source of most income, and corn, hay, and pasture, and there are nine sawmills operated in the watershed, which produce a significant amount of the total agricultural income.

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Let me give you a little bit about the history of the development of the Jennings Creek watershed project now. From the date of the 1946 major flood until 1954 the local people sought relief of one kind or another by appealing for help from various sources, and by using their own resources to the fullest extent that they could also. Yet they were unable to find any means by which they could achieve substantial relief from their severe flood problems. Within 3 months of the date of enactment of Public Law 566, the local soil conservation districts in this area submitted an application for assistance under the provisions of that act, namely, on November 9, 1954. This application was reviewed by the Governor's watershed committee and they were advised that the local organizations or local people would need to form an organization which could have the necessary financial and legal resources to carry out a program of the kind that was contemplated in this area.

The local people then proceeded to form an informal watershed association, which was the most that they could do at that time, since Tennessee had not yet enacted its Watershed District Act. This watershed association went to work doing an excellent educational and informational job to show people inside the watershed what their requirements would be, and what commitments they would have to make on the outside to secure assistance from various organizations that might be in a position to help them.

They also went to work on their own, doing all they could.

For example, in the fall of 1956, 100 farmers having land in the flood plain area, banded themselves together informally through the watershed association and spent a total of 600 man-days of their own labor in clearing and snagging the worst obstructions in this stream in an effort to get some flood relief on their own.

The watershed association leaders in the meantime contacted every owner of land in the flood plain. This was done to lead up to the formation of a watershed district under the Tennessee Watershed District Act. A petition for the formation of that district was circulated and an election was held on November 1, 1957. There were a total of 468 votes cast in that election, of which 462 were in favor, and 6 were against the formation of this legal taxing district to carry out the plan.

Following that, the district revised the Public Law 566 application and resubmitted it to the State agency designated by the Governor to approve watershed applications. That is the State soil conservation committee. Their application was submitted on December 2, 1957. It was approved by the State soil conservation committee on February 27, 1958, and the application was submitted to the Washington office of the Soil Conservation Service on March 3, 1958.

On April 15, 1958, the Soil Conservation Service authorized the planning of this watershed.

In the actual planning, the field party got underway in this watershed in July of 1958, and in October of 1958 the tentative plan had been completed. It was at that time reviewed with the local organization and the various concerned Federal and State agencies in an open meeting. The sponsoring local organizations approved the draft of the watershed work plan in November 1958, and the draft plan was submitted to Washington for tentative approval in December. The

plan was approved in Washington in tentative form and the local sponsoring organization signed the watershed work plan agreement in January of 1959.

Following that, the plan was submitted in accordance with the procedures provided for in Public Law 566, to the Corps of Engineers, the Department of the Interior, and the Governor of Tennessee, for review and comments. Review and comments were received on this. They were favorable.

The plan was then approved by the Department of Agriculture and was transmitted to the Bureau of the Budget on March 26, 1959. The plan is now in the Bureau of the Budget and will probably be submitted to the Congress for consideration in the very near future.

In terms of the planned improvements in this watershed, the agreed-upon improvements will include a program of land treatment on all of the watershed lands including improvement of woodlands by better management and intensified fire protection, and improvements of pastureland by reseeding and fertilization; the improvement of a relatively small amount of cropland by applicable conservation practices such as terracing, rotations, and cover crops.

The estimated cost of the land treatment phase of the program to the local people will be $192,431. The estimated cost of the accelerated technical assistance provided by the Soil Conservation Service and by the State forestry agency through the Forest Service will be $25,500.

In addition to the land treatment, the plan provides for a series of 13 floodwater detention structures, as shown by the symbols on here, controlling the drainage areas shown in orange on this map. These are all relatively small floodwater detention structures. The largest structure has a capacity of only 1,150 acre-feet.

For that reason, because of the small size of the watershed and the fact that it does not have multiple purposes in the sense of having municipal water supplies or other needs of that kind, this plan will go to the Agricultural Committees of the Congress rather than to the Public Works Committees.

In addition to the 13 floodwater-retarding structures, there will be 102,000 linear feet of channel improvements, that is, cleaning and realinement in places of the channel, giving greater hydraulic efficiency and thereby increasing its flood-carrying capacity.

The cost of the structural improvements to the Federal Government will be $1,875,538, and to local interests for land, easements, and rights-of-way, and for administration of contracts, $56,323. The benefits that will result from this plan of improvement, with the combination of land treatment and the structural improvements, will be to reduce the average annual acreage flooded by 77 percent.

I should have pointed out that 95 percent of the flood plain is class 1 land, as classified by the Soil Conservation Service, whereas there is very little class 1 land in the upland area. The average annual floodwater and sediment damages will be reduced by 82 percent as a result of this plan.

The benefit-cost ratio for the structural measures is 1.5 to 1.

Just a word about the relationship to the program of the Corps of Engineers.

As I mentioned earlier, the Corps of Engineers' program on the Cumberland River, includes the authorized Carthage Dam, which will

at full stage produce a backwater condition up to the point shown by this line on the map here. So that in evaluating the program of upstream watershed protection in this watershed, no benefits were claimed below that line, although as a matter of fact if this program is installed over the next 4 or 5 years, and if the Carthage project is not constructed during that period or is delayed, there would be substantial accrual of additional benefits downstream. But in order to avoid any duplication of claiming benefits these potential benefits were eliminated.

So that taking that together with some possible land enhancement which was not evaluated either, the actual benefits may be more than 1.5 to 1 over the project life.

The Jennings Creek Watershed District has advised us that they will need to and expect to apply for a loan under section 8 of the amended Public Law 566. They will seek a loan from the Farmers Home Administration to take care of the costs of land, easements and rights-of-way, and administration of contracts, in the amount of some $50,000 or more. They will levy a tax against the beneficiaries in the flood plain area to amortize or pay off that loan.

They are proposing to construct this project on a 5-year schedule. They have also guaranteed the operation and maintenance of the improvements by action of the district in perpetuity at an estimated average annual cost of $4,639.

I believe that is a reasonable summary of what is involved in this project, and we will be glad to answer any further questions on matters that we have not brought out.

Mr. DONALD WILLIAMS. Mr. Chairman, I wonder if it would be permissible for Mr. Brown at this time just to point out the photograph here which would illustrate one of these floodwater-retarding structures, and the nature of it, and something about the type of construction involved in it?

Mr. SMITH. All right. We would like to have you do that, Mr. Brown.

Mr. BROWN. This is a photograph of a typical, small, floodwater-retarding structure of about the type that would be involved in the construction in this project. This is an earthfilled dam with an outlet structure of reinforced concrete set on cradles to prevent settlement, which permits the automatic drawdown of any floodwater in excess of the normal flow of the stream. This has a sediment pool calculated to take care of the amount of inflow of sediment from the watershed over a 50-year period.

Of course, when the structure is built this sediment storage is a pool of water which is available for such purposes as the landowners may desire to use it for—for recreational purposes, or for a minor amount of irrigation, or that sort of thing. But this pool area would be filled up over a 50-year period with sediment.

Now, this outlet structure here is ungated and the flow comes into the reservoir area, in excess of the amount of outflow; the detention pool level fills with the excess water and the amount that is released here is calculated and designed to be the amount that will be carried within channel banks downstream from the structure.

These structures in this particular watershed are designed to hold what the hydrologists call a 100-year frequency storm. In other

words, a storm which would not occur more often, on the average, than once in 100 years would be completely contained within the structures. These structures control about 43 percent of the total drainage area above the mouth of this watershed. This is compacted earthfill made according to the same specifications used by the Corps of Engineers in the construction of their major earthfilled dams.

As I pointed out, this is a concrete tube on here which is set on cradles with seepage collars around it to prevent any settlement or seepage around it. The outlet here is ordinarily a simple pipe outlet which drops the water into the stream. There is a hazardous erosion condition and occasionally there are stilling basins placed at the lower end of the structure.

This is a picture of a somewhat larger type of structure, of the type being built out in the western plains country, which shows the emergency spillway carried around the end of the structure.

All of these structures do have emergency spillways and, on the average, these would not be used at the Jennings Creek structure, as I pointed out, more than once in 100 years. Ordinarily these spillways here are excavated in earth material and they are seeded and kept in a dense grass cover.

It so happens in the Jennings Creek structures with relatively thin soil most of these spillways will be excavated in limestone and will actually be on rock.

Mr. SCHWENGEL. Will the gentleman yield?

Mr. SMITH. Do you want to question him specifically about that structure?

Mr. SCHWENGEL. No. I was going to ask a general question.

Mr. SMITH. If you will delay that. If you have a question about that structure, we will permit that.

Mr. MUMMA. Mr. Chairman, I have a question.

Mr. SMITH. All right, Mr. Mumma.

Mr. MUMMA. In this type of work, do you deal in dry dams any?

Mr. BROWN. Yes. Some of these are built with the outlet virtually at the bottom of the dam, so there is only a very minor amount of water storage; the maximum amount of storage put in there is equivalent to the volume of sediment deposited in the 50-year period.

Mr. MUMMA. Does that enable the farms to be used except in case of emergency, in the basin of the dam, in the case of flood?

Mr. BROWN. It will permit use of land which is within this detention pool area for pasture, or even for crops at the upper end of it, because of the infrequency with which flooding would cause the water to get up toward this maximum level, once in 100 years.

Mr. MUMMA. In Ohio, in the Miami Conservancy District, they have mostly dry dams. Is that on account of the railroads being there, or the gas lines, or better farms? How do you determine that?

Mr. BROWN. This is essentially the same type of construction as the Miami dams, except that they do have only a very negligible pool behind them. Most of them do at least. These can be constructed either way.

Mr. MUMMA. It would probably be an engineering decision that would have to be made, wouldn't it?

Mr. BROWN. That is right. Yes.

Mr. SMITH. That is a very good explanation of that for the committee, Mr. Brown.

Mr. Williams, are the formal statements you have to present concluded now?

Mr. DONALD WILLIAMS. There is one other feature of the Watershed Protection and Flood Prevention Act, Mr. Smith, we did not touch upon in the general statement. That is, in section 6 there is a provision which provides for river basin planning in cooperation with other agencies. If you will care to take a few moments on that, I will ask Mr. Young to make a few comments on that history, if he would.

Mr. SMITH. For the benefit of the committee, when Mr. Young completes this statement we will make Mr. Williams and his staff available for questions about the program.

Mr. YOUNG. Mr. Chairman, the Flood Control Act does provide under section 6 for participation in river basin surveys and river basin studies with States and other Federal agencies. Under that provision we are now cooperating with other Federal agencies and the States in river basin studies and coordination in the Missouri River Basin, the Columbia River Basin, the Arkansas-White-Red, the Upper Colorado River, the Mississippi Delta, and in the Pacific Southwest, the Potomac, the Delaware.

We are also participating with the two river basin study commissions which were set up under special act of Congress last year in Texas and in the Southeast.

Work under this section of the Watershed Act is cooperative with States and with other Federal agencies. The Corps of Engineers, the Bureau of Reclamation, the Department of Agriculture, and the State water boards are participating in coordinated planning and in the execution of those plans in the river basins I just mentioned.

In the State of Mississippi we have completed a study made cooperatively with the Corps of Engineers for the entire delta area of the lower Mississippi. We provided the Corps of Engineers, at their request, with estimates of benefits that would accrue to agricultural drainage from the principal outlets which the Corps of Engineers was planning.

Following that study, we participated with the Mississippi Water Resources Board in a continued study of the effect of drainage on the agricultural lands. We directed the study toward the benefits that would come from using the major drainage installations which the Corps of Engineers is now planning. It had the additional objective of planning the types of upper watershed measures that would be necessary in making the drainage systems work effectively.

Out of that, we think, may come the basis for some additional watershed projects in the future. We have just about completed that project and that type of survey with the Mississippi Water Resources Board. We anticipate we may move this cooperative planning arrangement into the Tombigbee Basin, which includes some of the Mississippi and some of Alabama, and carry out cooperatively with those two States and with the Corps of Engineers and other interested agencies a study of water and related land resource development.

We have similar types of studies cooperatively carried out with the Corps of Engineers in the upper Mississippi, the Delaware, the Potomac, and in other river basin and watershed studies.

Mr. SMITH. Thank you, Mr. Young.

As I stated, I think the committee members have some questions about your statement, Mr. Williams, and that of the others.

Mr. Thompson.

Mr. THOMPSON. Yes, Mr. Chairman.

This question will be addressed to either Mr. Williams or Mr. Brown.

There has been a serious question raised, at least in my area, as to whether or not there were any contingent liabilities involved in the event of a blowout of one of the dams, or more than one, involving the property owners from whom easements were received. Has that question come to your attention?

Mr. DONALD WILLIAMS. Yes. That question comes up, I think, Mr. Thompson, in connection with practically every watershed that is developed. Under the terms of the law, of course, these projects being local rather than Federal projects, with the local organizations having to acquire the easements, rights-of-way, and things of that kind, the answer to that question will vary from one State to another, depending upon Sate law as to the degree of responsibility and where the responsibility would be placed; but the responsibility is not upon the Federal Government. It would rest with the local organization that assumes the responsibility under State law for the activity.

Mr. Brown may be able to supplement that a little bit, but, in general, that is the situation.

Mr. THOMPSON. In general, but now specifically, suppose there are certain flood control features for which the Government pays, which are involved in the watershed project, and because of the flooding they would go out? The Federal Government would have to pay for that entire portion or phase of the structure. Would the Federal Government have any responsibility there?

Mr. DONALD WILLIAMS. I would like to ask Mr. Brown and also a representative of the General Counsel's Office, who are here to help me with that.

Mr. Brown, do you have any comment?

Mr. BROWN. I am not sure I do.

Mr. DONALD WILLIAMS. Would you like to comment on that? This is Mr. Adams from the General Counsel's Office.

Mr. THOMPSON. Gentlemen, that has been a serious impediment to your program. I am thinking specifically of the upper Bayou Nezpique in my district, where this committee approved one of the largest projects at that time at least that we have approved. After the approvals were granted it was learned because of that fear on the part of the large landowners they refused to grant easements because they could not be satisfied that there was no contingent liability in the event of a series of blowouts which might involve quite a lot of damage.

Mr. ADAMS. Mr. Thompson, I think Mr. Williams is essentially correct in his statement. It is primarily a question of State law, and I can agree with you it is a very serious matter. However, I do not believe that the fact that the Federal Government is paying the cost of the flood-prevention structure would have any significant bearing on the question of liability. The only thing that the Federal Government could be brought into the matter of liability on, I think, would be on the ground that there was some negligence on the part of the Federal Government in developing engineering plans, or something of that kind, which might be the basis of liability under the Federal Tort Claims Act. Other than that I see no basis for liability on the

part of the Federal Government simply by reason of the fact that it is paying part of or all of the cost of these flood-control structures. I think it is almost solely a question of liability under State law, and, of course, the State laws do vary considerably from State to State on that question.

Mr. THOMPSON. Thank you, sir.

Mr. Williams, in line with that, is it the policy of the agency then to approve certain projects prior to the acquiring of these easement contracts?

Mr. DONALD WILLIAMS. Not in terms of a specific construction proposal. Now, we are talking in terms of a general agreement on the basis of the proposed work plan which does not obligate any money, but merely sets forth an agreement of intent to proceed. But before we would enter into any specific project agreement which would provide for supplying of funds to that local organization, they must have met the requirements of the act, meaning, their rights-of-way, and whatever else might be involved.

Mr. THOMPSON. Based on my knowledge of this upper Nezpique Bayou in my district, this committee, the Public Works Committee, at that time was handling it. It was before the full committee.

The committee was held in session for two additional weeks by the chairman awaiting several of these projects. Then we did approve the Nezpique project and the committee was caused to wait for the necessary approvals down the line, Agriculture and others, and after the approval of the committee others found that the easements had not been secured. So it seems to me a policy could be developed requiring the acquiring of these easements prior to any final action by this committee.

Mr. DONALD WILLIAMS. That is a point which has had a great deal of discussion, Mr. Thompson. I will say this: In many cases the State agency acting for the Governor on this has been rather insistent in the establishment of priorities for planning within the State that there must be considerable progress made on the matter of obtaining the easements, but in the final analysis it seemed to use that we had to protect the Federal dollar going into it. That was the final leverage on it. If they were to all intents and purposes ready to proceed and the necessary assurances had been given they would indicate their desire to move forward, having the necessary legal organization, and so on, why, it seemed to us that the matter of proceeding up to the point of being ready was a practical thing to do.

However, we do not think that there should be any allocation of funds to that local organization until they have in fact gotten all of the final arrangements made.

I would like to ask Mr. Brown further to comment on this point, also.

Mr. BROWN. Mr. Thompson, I think this is in the same setting as the authorization of a project of the Corps of Engineers. The approval by this committee of the work plan constitutes authority for the Government to proceed in carrying out the project.

If I understand it correctly, customarily the Corps of Engineers does not require the acquirement of the easements as a precedent to the project authorization, but they are required to have the easements obtained by the local organization or to be purchased by the corps before the construction begins.

Mr. THOMPSON. Let us grant that is true, which leads to my final question: In a watershed such as this, one which resembles the one I am speaking of, suppose you have 50 percent of these dams which could serve a purpose independently of the construction of the other 50 percent, and you do have difficulty in securing easements for, let us say, 40 or 50 percent of the proposed structure. Could you then authorize the construction of 50 percent of the total project based on the number of easements you have already received?

Mr. DONALD WILLIAMS. Yes, sir. That is entirely possible, providing those particular structures are fully justified in their own right. In other words, providing they are not interdependent on another structure, if they are fully worthwhile.

Mr. THOMPSON. That would be a point of great interest to me in the development of this area in Louisiana.

Mr. DONALD WILLIAMS. We would have to meet some of these projects in that way, Mr. Thompson.

Mr. THOMPSON. Because for a long period of time I am afraid you will not get easements from the people who own hardwood lands where the easements are desired, at the bottom of the valley.

Mr. DONALD WILLIAMS. That is right.

Mr. BROWN. As Mr. Williams pointed out, there are actually two steps in approval. The approval of the work plan by the committee is an approval of the agreement contained in the plan between the organization and the service, which says, in effect, "if the Federal Government will do this, the local organization will do this." When it comes to the actual construction, a project such as this may be broken down into what we would call construction units.

The amount of benefits down to this point, accruing from the structures above it, were sufficient to justify this group of structures, that would be construed to be a construction unit, and if all of the easements were obtained for those, then we would sign a project agreement, which is a fiscal obligation document making the funds available to the local organization after those easements have been acquired for the proceeding with the construction of this group of structures, even if they didn't have easements on these.

Mr. THOMPSON. Without bothering you or the committee further, Mr. Brown, I wonder if you could secure for me a report as to which of the Bayou Nezpique units—and I think these are 9 or 10—would be self-sufficient within themselves to accomplish the purpose?

Mr. BROWN. I would be glad to.

Mr. THOMPSON. So I can see whether or not easements have been received on them.

Mr. BROWN. I would be glad to.

Mr. THOMPSON. Thank you, Mr. Chairman.

Mr. SMITH. Mr. Fallon.

Mr. FALLON. Thank you very much, Mr. Chairman. I appreciate this opportunity to question the witnesses and to be here, although I am not a member of this subcommittee.

Mr. SMITH. This is the whole committee at these hearings.

Mr. FALLON. I was interested in the project last year, and I went up with some members of the Department of Agriculture and also some people from Carroll County, which lies outside of Baltimore. My interest in going with them was I was asked by the mayor to take an interest in this project because of the continuation of the silting

up of the water dam that we have up there, which is the main source of supply of water for Baltimore City.

I understand that this project, after having consideration, was turned down because of the fact that the economic benefits to costs were not high enough, and the damage done to the reservoir of Baltimore was not considered in the benefit-cost ratio.

I was wondering, Mr. Chairman, if that is not one of the biggest factors in containing the soil on the land; namely, to keep it from silting up the reservoirs in the streams and harbors. You save by not financing the project on one end, and on the other end we have to dredge the reservoirs and rivers and harbors of all of this rich soil that flows down into them from an unprotected project. I was wondering if that could not be considered an economic benefit.

Mr. DONALD WILLIAMS. It certainly can, Mr. Fallon. There may have been some other factors involved in this specific case that I am not aware of.

Mr. Brown, do you recall that particular case?

Mr. BROWN. Yes; I do, Mr. Fallon. The benefits from the prevention of silting are certainly taken into account. The situation over at Baltimore was, I think, that they found the rate of silting of the reservoir and the annual loss of storage from silting was so small that when you discount that back to the present worth it still did not provide very much benefit. There are some situations of that kind. If you have a reservoir which will provide full services for 50 or 100 years in the future without material lessening of the capacity, then you do not get much in the way of benefits at the present time as calculated by the economists when they discount that factor to a present worth value.

I think that was the situation.

Mr. FALLON. Do I understand that the reservior was considered in whatever you do to compute the benefits as against costs?

Mr. BROWN. Yes, sir. I am sure it was taken into account, but that, together with the other benefits, which were comparatively small in view of the fact that there is not too much development of land subject to flooding, did not seem to produce enough benefits to justify a program of this kind.

Mr. FALLON. Evidently the water engineer and the mayor of Baltimore felt there was considerable damage and some protection against it should be made.

Mr. SMITH. You might get a statement about this, as it is one of the projects we might consider in a further study, if you would like to, Mr. Fallon.

Mr. FALLON. Yes, sir; I would.

Mr. BROWN. I will be glad to provide a further statement.

Mr. SMITH. We will go into individual projects later to try to determine how they work, and that might be a good example.

Mr. DONALD WILLIAMS. I think that it would be helpful to explore it back of that particular watershed in terms of the applicability of this act with respect to these local interests.

Mr. FALLON. Thank you. I would appreciate it.

Mr. SMITH. Do you have any other questions, Mr. Fallon?

Mr. FALLON. No.

Mr. SMITH. Mr. Baldwin.

Mr. BALDWIN. I have a question of Mr. Williams and Mr. Brown dealing with the rate of financial appropriations for these projects.

Is my understanding correct that up to now in the appropriations you have asked each year of the Congress, you have asked for them on the basis of the estimated number of projects which will clear the last stages and be ready for construction, so that up to now anyway you haven't ever had the overhanging backlog such as we have had with the Corps of Engineers projects?

Mr. DONALD WILLIAMS. That is correct. The only backlog we have had, Mr. Baldwin, has been in terms of applications for planning, where we could not get to the planning task. But as far as the projects which have been approved for operations are concerned, we have had sufficient funds in hand to proceed with the ones that have been authorized. That has been true both with respect to Public Law 566 projects and it has been generally true with respect to the pilot projects.

Mr. BALDWIN. Is your request for funds for fiscal year 1960, which is now pending before the Appropriations Committee, also submitted on the same basis, on your best estimate as to the adidtional projects that will be ready for construction in this year?

Mr. DONALD WILLIAMS. Essentially so, Mr. Baldwin. The estimate presented by the Soil Conservation Service went through the budget in the normal budgetary channels of review by the Department, and then by the Bureau of the Budget, before it was submitted to the Congress. The estimates prepared by the Soil Conservation Service initially were not the same as were submtited by the President to the Congress, but the funds that would be available under the President's budget for operations work appeared to be ample for 1960 on the projects that are likely to be approved.

There was a limitation established by the Bureau of the Budget, and this may be the point you were thinking of, with respect to new starts. In other words, we were permitted to make 60 new starts this fiscal year.

Mr. BALDWIN. In 1959?

Mr. DONALD WILLIAMS. Yes. In the fiscal year we are in; and 40 new starts in the next fiscal year. The 40 new starts for next fiscal year will be with funds which have already been appropriated and which would carry over. We are not permitted any new starts in the next fiscal year out of new money.

So that may have been what you were thinking about rather than the question of what we had asked for. I am not sure.

Mr. BALDWIN. Yes; it was. For example, I, like many other members here, have projects coming along, one called the Marsh-Kellogg project in my district, which just may get to us in time for approval by the end of this Congress. It is just getting cleared through the State agencies now.

If a project like that does get clearance and gets clearance in this Congress, I take it from what you say that if the Appropriations Committee approves the recommendations of the Bureau of the Budget in the form in which they were submitted by the Bureau of the Budget, any project of that kind then would not get any funds from the 1960 appropriations unless the Appropriations Committee knocked out that limitation of the Bureau of the Budget.

Mr. DONALD WILLIAMS. That is essentially correct, Mr. Baldwin. Or unless there were sufficient carryover funds to permit them to come under the 40-project limitation. It could not come under new money.

Mr. BALDWIN. I have one other question.

In Corps of Engineers projects we have got to go before the Appropriations Committee and get specific funds for specific projects. If I understand it correctly, you go before the committee for a lump sum and, aside from the budgetary limitation on the number of new projects, the lump sum may be used for any particular project that may have gotten to the point of construction, and normally you may make a decision to allocate the funds to that project at that point without having had to get a line item, for example, in the Appropriations Committee report on it.

Mr. DONALD WILLIAMS. That is correct. It is a lump-sum appropriation. In the legislative history contained in the normal budgetary notes which go to the Congress there is a listing each year of the projects in active status and the ones for which operations funds are going, but we do not have to request the funds on an anticipated-project basis, project by project.

Mr. BALDWIN. Thank you.

Mr. SMITH. In relation to those cost questions, Mr. Williams, your request for appropriations this year for planning studies does not equal the amount of applications for planning that you have, does it?

Mr. DONALD WILLIAMS. The President's budget provides, I think, $4,300,000. Is that right, Mr. Brown?

Mr. BROWN. Yes.

Mr. DONALD WILLIAMS. $4,300,000 for planning, which is a $400,000 reduction from this current fiscal year. We have at the present time in this fiscal year about 42 planning parties. We are not supplying any State more than one planning party, but the size of that party does vary some by States. In the northeastern part of the country, up in New England, we have one party serving several States. It varies by the degree of interest and the number of applications ahead and so on.

Because of our inability to meet this planning backlog, as I mentioned in my formal statement, a number of the States have appropriated State funds to help with the planning job, and we have encouraged them to do so up to the point where the Secretary established a policy about a year ago that we would not accept State contributions toward planning to a greater amount than the Federal Government was putting in.

For example, if we were putting into X State $50,000 in planning, we would not accept from the State more than $50,000 if that money were to be used by the Soil Conservation Service.

I think, Mr. Brown, there is only one exception to that general arrangement and that is in California where the State employed their own personnel and their own planning parties and, I believe, authorized two planning parties paid from State appropriations which operate independently from the Soil Conservation Service but with respect to the same procedures and standards of planning. So, of course, if the State hires its own planning party and conducts its own work, there is nothing the Federal Government can tell them or it should not tell them that they cannot do it.

So that is the only place in the United States at the present time where there is more than one local or State-financed planning party, and I think the reason why the State of California did it, Mr. Baldwin, was because of the very great interest out there, particularly from the Bay area down south, in this activity.

Mr. BROWN. If I might, Mr. Chairman, I think that question may be illustrated on this chart here, which shows the increasing number of applications by quarters since the program was organized in 1954 as shown by the green, and the number of approvals for planning assistance shown in yellow, which makes it quite clear that there is a progressive spread, or a lag between the amount of planning assistance that can be provided at the levels that have been available and the number of applications.

Mr. EDMONDSON. Mr. Chairman.

Mr. SMITH. Mr. Edmondson.

Mr. EDMONDSON. I just want to get very clearly in my mind the operating effect of an approach such as they have in California.

When a State planning party operating independently of actual Soil Conservation Service direction, but at the same time following the same standards, does complete its planning on a project, that project has the same eligibility for Federal participation in the construction of the reservoir to prevent flooding that a project that is planned by a Federal planning party does, does it not?

Mr. DONALD WILLIAMS. That is correct, providing the project meets all other qualifications. Who pays for the planning is the only difference. That is correct. And that may create some problems looking into the future. It has not up to this time.

Mr. EDMONDSON. I would assume a very close liaison was maintained with the Soil Conservation Service people and the Engineers as well, where it involved a project that the Engineers also would have some interest in, to assure that there was some supervision at least on the standards that were imposed?

Mr. DONALD WILLIAMS. Irrespective of who actually pays for the planning, such as in Oklahoma, as you are aware, the State appropriated funds for some of the planning work in Oklahoma. I have forgotten the exact figure, but it is a substantial amount. Well, actually in Oklahoma those funds are used by personnel employed by the Soil Conservation Service. It is a transfer of funds from the State government to the Soil Conservation Service on a reimbursable basis. So that our personnel there under our immediate supervision, are doing the planning just as if they were paid from federally appropriated funds. So that there is no difference there.

In the California situation we provide continuous liaison with the State department of natural resources, which has supervision of their planning parties, so that we are sure as the work moves along that they are using the same criteria. Suppose there is some slip somewhere along the line and they did not follow all of the procedures, we still have to approve the work plan by the same standards in the final analysis.

Mr. EDMONDSON. I was wondering about that because the present budget in Oklahoma includes the provision for two additional planning parties. While we would hope that the same arrangement that has prevailed could be continued, whether it is or is not we would certainly want to comply with the same standards that have been es-

tablished on the Soil Conservation Service projects and to be assured that the projects once planned were on a sound footing for Federal participation on the construction.

Mr. DONALD WILLIAMS. From a policy standpoint, Mr. Edmondson, there has been no policy established in the executive branch, either in the Department of Agriculture or the Bureau of the Budget, that would place any lesser degree of priority on those work plans than on the ones that the Federal Government financed entirely.

Mr. EDMONDSON. It is my understanding that the Appropriations Committee is considering language in its report that is coming out shortly in this field, to clarify congressional intent on this subject, and I would assume that they had been in contact with you regarding that language.

Mr. DONALD WILLIAMS. They discussed it with us at the hearings. They have not reported out the bill so I do not know what position they will take. But the subcommittee of the Agricultural Appropriations Committee chairmaned by Congressman Whitten of Mississippi, did raise questions with respect to the appropriations structure and its impact on planning operations, and so forth, and I assume that they have those things under consideration at the present time.

Mr. EDMONDSON. In our case you have a program that is so popular we cannot get the planning going fast enough on it to satisfy the people down there. I know, and I can appreciate it, and I am sure members from other States where the same conditions prevail can appreciate your encouragement that has been given to State initiative in that direction.

Mr. DONALD WILLIAMS. You might be interested to know, Mr. Edmondson, that in several other States—and I do not have a complete list at this time—the State legislatures which have been in session this year, and Tennesseee is one of them—I don't know all of them—have just this year for the first time appropriated some State funds further to implement the planning too. So that what actually originated in Oklahoma in this direction seems to be speading to some of the other States.

Mr. EDMONDSON. We are certainly happy with the program and with the wonderful people that you have in Oklahoma working on it, because I think you have some men who have not only proven to be mighty good planners and mighty good program men, but they have also been very effective salesmen for the idea of soil conservation and watershed flood prevention.

Mr. DONALD WILLIAMS. I might make this additional observation: You will recall in the early days of the soil conservation movement in this country that the soil conservation districts came into the picture back in the period from 1937 on. For several years—and it took a good bit of selling to get people to go into soil conservation work. We have not been bothered with that problem for the last several years in the Soil Conservation Service. We have just been trying to keep up with the parade in terms of interest of the general public in this area.

The same thing seems to be happening now with the watershed approach. I think your observations are very accurate not only with respect to Oklahoma, but in many other parts of the country.

Mr. EDMONDSON. Thank you for a fine statement which you have given us here in the committee.

Mr. SCHWENGEL. Mr. Chairman.

Mr. SMITH. Mr. Schwengel.

Mr. SCHWENGEL. I would like to say first, as one who has been very interested in this work, in soil conservation, and conservation generally, that I am keenly aware of how hard you have worked and I want to commend you on what you have been doing. Also I appreciate this fine statement you have given this committee.

I want to point out, Mr. Chairman, that this is the first meeting of this subcommittee. Isn't that right?

Mr. SMITH. On specific projects. This is the first study hearing.

Mr. SCHWENGEL. I think it is making history in a sense, and I am personally glad we are giving serious consideration to the broad field of soil conservation and this specific, but very important, area of conservation. I have one or two specific questions.

One is, I would like to refer to the Tennessee project which you talked about and ask you if you will give us a brief breakdown of the costs involved in the development of this watershed in that area, Mr. Brown. Can you give us those briefly?

Mr. BROWN. You mean, Mr. Schwengel, the costs for the measures included in the plan?

Mr. SCHWENGEL. Yes.

Mr. BROWN. Yes, sir.

As I pointed out, the program consists of land treatment measures and structural measures. The land treatment measures, just to cite two or three examples of the kind of measures we are talking about, would be conservation crop rotation, 1,074 acres; cover crop, 2,300 acres; contour farming, 819 acres; fencing, 11,550 rods; pond construction, 90 ponds, and so forth.

The total local costs of the land treatment program would be $192,431, and the Federal technical assistance, $25,500.

There are 13 floodwater retarding structures. The Federal construction cost of those is borne entirely by the Federal Government and is $1,415,792.

The channel improvement, borne entirely by the Federal Government—the construction borne entirely by the Federal Government—would be $31,891, making a construction total of $1,447,683.

The costs of the engineering services and the administrative costs to the Federal Government for the program are $427,855. The cost to the local organization for lands, easements, and rights-of-way is $48,207; administration of contracts, $1,500; and other organizational costs, which means primarily assessments to beneficiaries, $6,616; or a total to the local organization for the structural work of $56,323.

The grand total for the entire project is a Federal cost of $1,901,038, and to local organizations, $248,754, or a total project cost of $2,149,792.

Mr. SCHWENGEL. And the benefit-cost ratio I believe you testified was——

Mr. BROWN. 1.5 to 1.

Mr. SCHWENGEL. One other question in this regard. This is not a necessary pattern. For instance, in Iowa, in my district, on the Iowa River, we would not have the channeling problems you have. The

cost would probably be much lower than the figures you presented on the Tennessee project?

Mr. BROWN. Yes, I would anticipate that. And this project is not necessarily the average of what could be expected. We have prepared for the committee a pie chart here, which might be more indicative of the average.

This chart shows the cost distribution on the first 152 projects approved. Mr. Williams' testimony gave a figure of 154 projects. The yellow on this pie chart shows the Federal cost, and the green shows the non-Federal cost. It is broken here to show land treatment in this piece of the pie and structural measures in this piece of the pie. This piece shows the local costs for land treatment and the Federal technical assistance costs, and this shows the Federal construction cost, which is 39.3 percent, and the installation services, 12.3 percent. Lands, easements, and rights-of-way is a local cost of 8.7 percent.

Some of these projects, of course, involve drainage and irrigation, and involve some local construction costs as well, which is 1.7 percent of the total, and some administrative costs to the local organizations.

Mr. SCHWENGEL. That is all.

Mr. SMITH. Mr. Burke.

Mr. BURKE. No questions, Mr. Chairman.

Mr. SMITH. Mr. Hargis.

Mr. HARGIS. No questions, Mr. Chairman.

Mr. SMITH. Mr. Robison.

Mr. ROBISON. Mr. Williams, I would like to join with Mr. Schwengel in complimenting you on the administration of the program and to say that I too am very much interested in it, and I think it is performing a very valuable function. My district in New York State is located in the upper Susquehanna River Basin, in the Binghamton-Elmira area. I am not sure you are familiar with that, but perhaps Mr. Brown is.

I am particularly interested in the problem of coordination of the flood control part of your program and the flood control program of the Army Engineers. It seems to me that the intent of Congress, and I am sure it is the intent of the administration as well as the Army Engineers, is to coordinate both of your efforts into one overall flood control of benefit to the localities where you are both doing work.

In my area, to be more specific, we have had authorization for a number of years for several Army Engineer big dams, of which only two, or perhaps three, I think it is, have been built. There are some five that I think are remaining. They have been authorized, but we have never been able yet to get appropriations for them. Last year in the authorization bill put out by this committee there was also an authorization for an additional Army Engineer project in the Cowanesque Valley in the northern part of Pennsylvania to the west of my district, but through which the upper Susquehanna Valley also reaches. So that project of the Army Engineers, if and when it can be built, will be of benefit to the people in my district.

What is happening in my area, and I think it is something this committee should properly consider, Mr. Chairman, is this: We have upstream of Binghamton and also in Pennsylvania in the Cowanesque Valley area, local opposition to the construction of the Army En-

gineers' projects. Part of that local opposition, it seems to me, arises from the fact that the local people, some of them, anyhow, are convinced that your program of providing flood protection through your methods is more efficient and less costly to all concerned than the Army Engineers' program. This means to my mind that we will continue to have appropriation problems in getting funds for the construction of the Army Engineers' projects until this philosophical difference of opinion at the local level can somehow be resolved.

I am not sure you follow me in my thinking.

Mr. DONALD WILLIAMS. Yes, I do.

Mr. ROBISON. I think it is perhaps something that has been brought to your attention before. I am sure it is not a result that has been intended or contributed to by anything you have done, or that the Army Engineers have done, but it seems to me it has sort of been a natural result from the fact that you do have two different types of approaches to providing food protection for our Nation.

Could you comment on that for me and for my own edification?

Mr. DONALD WILLIAMS. Yes, sir.

I am familiar somewhat with that particular problem up there, but not in all of the details of it. But I personally visited the area at one time and I know what it looks like physically.

It is true that the people up there in the Cowanesque Valley, which is rather typical for that type of country—people who have farms and land up in that area have been unhappy since day one about the proposal of some major flood control structures which they felt and which would take some of their land. So that there has been a very inherent interest and, I suspect, from a human nature point of view, somewhat of a natural tendency on their part to be opposed to what might happen downstream.

We have pointed out to them that the final analysis is probably not either one way exclusively or the other way exclusively; that there is a combination of things that can be done in that area—and we think justifiably can be done—without the watershed program claiming any of the benefits from the Corps of Engineers authorized structures, but we recognize that there were some things that can be done on the watershed which will be helpful to some of those tributary areas above the flood pool of the Corps of Engineers reservoirs, and if they ever expect to attain success in their total picture there is going to have to be a little giving in their point of view to bring that about.

I think we have noticed a considerable change of viewpoint this past year from what I know of the situation. Those folks up in the upper part of that watershed at the present time are exploring another kind of watershed program that would not interfere in any way or take away any of the purposes of the Corps of Engineers authorization. It certainly was true that there were some of those up there, so far as I am aware without any encouragement on the part of the Soil Conservation Service, who felt very strongly about that matter. I think it is a human tendency for them to feel that way.

Mr. Brown, do you recall the situation up there at this particular time in that watershed planning work?

Mr. BROWN. There has been considerable interest developed in the last year for carrying out, under the authority of section 6 of the law, which Mr. Young explained, a joint investigation to determine

what is the best coordinated plan involving both upstream watershed protection and the system of reservoirs proposed. I suspect that would perhaps be the most logical approach to determine what place each phase of this combined program has.

Mr. ROBISON. I am aware of that hope specifically, but it seems to me the problem is basically getting back to the people and getting back to the local groups that have taken the separate points of view, as to which is the best approach. I am not quite sure how we will be able to do it, but I think it is something we have got to do. Whether it can be done by a joint survey here, or a public relations job up there after the joint study, or a cooperative study, I am not sure. Do you have any thoughts on that?

Mr. BROWN. Ordinarily I think perhaps we need more of the facts which would be developed in such a study before we will be in a very good position. For example, the question has arisen any number of times as to what would be the effect of the upstream watershed program in these tributary watersheds such as the Cowanesque watershed, downstream at Binghamton, or other points along the main valley. Actually we do not know that.

If you take any one of these small watersheds, the effect would be negligible and not detectable far down on a large river. But we don't know, and no one knows, what the effect would be if you had a program over the entire watershed of the upper Susquehanna above Binghamton; and until those facts are known the argument is going blind as far as local people and we are concerned.

We cannot disprove what they say and neither can we support it.

Mr. ROBISON. That is what has happened in our area. Nothing is happening or is going to happen until somehow this philosophical difference over which is the best way of doing it is broken.

I hope this is something that the committee will work on further, Mr. Chairman. Thank you.

Mr. SMITH. Mr. Johnson, do you have any questions?

Mr. JOHNSON. Yes, I have one question I would like to ask Mr. Williams. He made a little mention of it. That is, with the State providing the two planning teams out there, along with the one you people carry out in the State, if they bring in a number of projects for approval and if they are approved, is there any restriction on the amount of money that can be going into the State?

Mr. DONALD WILLIAMS. There has been no restriction established by the Congress about the distribution of funds as between the States for operations work. The only restriction, or the only effort in that direction in the executive branch so far has been to restrict the Federal portion of planning to not more than one planning party per State. However, as I mentioned earlier, if the State sees fit to appropriate its own funds to further that activity, and in view of the fact that these are local projects rather than Federal projects, until or unless there would be some restrictions placed on the amount of money which may go into any one State, essentially it is on a first-come-first-served basis for those who are ready to proceed.

Mr. JOHNSON. You have a limitation on the number of new starts for 1959 which I believe you said was 60?

Mr. DONALD WILLIAMS. In 1960?

Mr. JOHNSON. In fiscal 1959 you had 60 starts, I believe you said.

Mr. DONALD WILLIAMS. Sixty new starts. Yes, sir.

Mr. JOHNSON. And now it has been cut to 40 new starts for fiscal 1960?

Mr. DONALD WILLIAMS. That is correct.

Mr. JOHNSON. And there is no limitation placed there?

Mr. DONALD WILLIAMS. In the budgetary recommendation.

Mr. JOHNSON. California is very much interested in your program. We have a large program underway out there and we think you are doing a very fine job. You have made a very excellent statement here, and I will take it back to the soil conservation districts that we have out there. We have a number of districts in California.

Mr. DONALD WILLIAMS. You are aware, Mr. Johnson, I am very well acquainted with California because I worked out there for some time. As you are aware particularly in southern California with the topography that you have there and the occasional deluges of rain, and the amount of sediment which pours out of those hills, the type of work that can be done, irrespective of who does it, is costly work. The cost per square mile, or on any basis you want to figure it, it costs more to do it in southern California than any other place in the United States that I am aware of.

Mr. JOHNSON. That is right.

Mr. DONALD WILLIAMS. Because of the physical problems involved.

Mr. JOHNSON. That is right.

Mr. DONALD WILLIAMS. So a small watershed from the standpoint of area may have a rather costly project and still be justified from the standpoint of the benefits that it will produce.

Mr. JOHNSON. That is all.

Mr. SMITH. Mr. Mumma.

Mr. MUMMA. Mr. Williams, is Ivan McKeever one of your men?

Mr. DONALD WILLIAMS. Yes, sir, he is.

Mr. MUMMA. Does he have other duties in connection with that?

Mr. DONALD WILLIAMS. Mr. McKeever is State conservationist for Pennsylvania. In other words, he is in charge of our Soil Conservation Service work for the State of Pennsylvania.

Mr. MUMMA. I was thinking now, if I could describe him I would say he is sensibly enthusiastic. He has been after Congressman Bush and me a number of times to go up and see his project. I think it is in Tioga County. This only goes back to 1956. It seems to me he has a project up in Tioga County that has been running for longer than that.

Here is one thing I want to ask you. Does he or do you make any agreements, or make these farmers enter into an agreement to carry on contour farming or to mulch crops, or anything like that, so that it will help your program, or can they go ahead and plow uphill and downhill and cause more dirt to be deposited? Do you get what I am driving at?

Mr. DONALD WILLIAMS. Yes, sir. Under the provisions of the act, the Watershed Act, Public Law 566 specifically requires that there must be not less than 50 percent of the land above any structure, such as the 13 structures on this example over here—it requires that not less than 50 percent of the land above that structure must be in a conservation agreement.

Ordinarily those conservation agreements are entered into between the farmer and the soil conservation district, which is a local subdivision of government, rather than with the Federal Government.

However, it is just as meaningful because it is an obligation on the part of the farmer to carry out the program with that local subdivision of government, and we will not put any construction money into those structures until those agreements for carrying out the conservation programs on at least 50 percent of the land are in effect.

Actually, it has been rather interesting that in Iowa—and I was going to mention this when Mr. Schwengel was here—the State of Iowa has imposed a stiffer requirement than the Federal Government did. The State of Iowa requires 75 percent of the land must be in such agreements. In other words, they added another 50 percent to the Federal requirement. But I think the idea is sound that there must be a conservation program fitted to that land, whatever that may be—in effect there to help reduce this flood problem and reduce the sedimentation—before we put the money into the structures.

Mr. MUMMA. Do you go into very small structures? It seems to me in a violent storm in sloping country there may be gullies, or something like that, that develop, and it may be sensible to put in a wooden structure. Did you ever go into operations that small?

Mr. WILLIAMS. Not under this watershed program, we have not.

Mr. MUMMA. Would that be more of a farmer's job?

Mr. WILLIAMS. That is right. In the early days of the soil conservation work there were a number of very temporary type measures put in that only lasted a few years. If a farmer is paying for it himself and if he understands it may only last a few years and he still wants to put his money in, that is his decision to make and not ours. But if the Federal Government is putting some money into it, we think then the type of construction should be such that it will last long enough to prove that it is worthwhile.

Mr. BROWN. This photograph, Mr. Mumma, which was taken down in the hill land country of Mississippi, shows one of these temporary-type structures. While this is an earthfilled structure, it is in a very severely eroding area in northern Mississippi. The chairman is fully familiar with it. It was put in in order to stabilize this gully for a short-term period while all of this badly eroded land is planted in trees.

Mr. MUMMA. How long is that area? Is it two or three hundred feet? It depends on your scale in the picture.

Mr. BROWN. I would judge that is not over a couple of hundred feet there. Probably a couple of hundred feet long. All of this area in here is scheduled for planting to pines, which will completely stabilize it, and after 5 or 10 years the structure itself is actually not needed. But if you let that gully keep on going without a structure, you will never get those trees there.

Mr. MUMMA. It will take more than 5 years to stabilize that.

Mr. BROWN. No. You will be surprised how fast that land can be stabilized with the rapid growth of pine they have.

Mr. MUMMA. Yellow pine?

Mr. BROWN. Yes.

Mr. DONALD WILLIAMS. That is the only kind of place where an interim structure can be used in that arrangement.

Mr. MUMMA. You might get into some of that indemnity stuff with a temporary dam like that.

Thank you.

Mr. SMITH. Mr. Williams, the committee appreciates the very fine statement from you and your staff about this program, in which we are all interested. I have a number of questions on behalf of the full committee, and there are several other members of the committee who indicated they wanted to be present at another hearing. I would like to suggest we work out a time in a couple of weeks or so, so we will not take up all of your day.

Mr. DONALD WILLIAMS. That will be very acceptable. I am very sorry we were not able to keep the appointment for tomorrow, because the Senate has scheduled our appropriation hearings tomorrow, and it seemed like we had to be there.

Mr. SMITH. We want to make sure we get your money. But we will work out a date at some time next month on which to have this additional hearing.

Thank you very much. The hearing is adjourned.

(Whereupon, at 12:10 p.m., the subcommittee adjourned until Tuesday, April 28, 1959, at 10 a.m.)

SMALL WATERSHED PROGRAM

TUESDAY, APRIL 28, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met, pursuant to adjournment, in room 1301, New House Office Building, at 10:10 a.m., Frank E. Smith (chairman of the subcommittee) presiding.

Mr. SMITH. The committee will come to order. The committee will resume its hearings on the small watershed program.

This morning we are very pleased to have with us Brig. Gen. John L. Person, who is Assistant Chief of Engineers for Civil Works, who is going to talk and give us some information about the program of the Corps of Engineers in relation to watershed and flood control, and how the Corps of Engineers program works in conjunction with the other watershed programs all over the country.

Mr. MCFALL. Off the record, Mr. Chairman.

(Discussion off the record.)

Mr. SMITH. Go ahead, sir.

STATEMENT OF BRIG. GEN. JOHN L. PERSON, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS, ACCOMPANIED BY CARTER PAGE, CHIEF OF PLANNING PROGRAM DIVISION, CIVIL WORKS; HOWARD L. COOK, CHIEF OF SPECIAL PROJECTS BRANCH, CIVIL WORKS; AND HENRY WEINKAUFF, CHIEF, SURVEY BRANCH, CIVIL WORKS, CORPS OF ENGINEERS

General PERSON. Mr. Chairman, in accordance with your request I would like to point out the relationship between the watershed protection and flood prevention program of the Department of Agriculture and the flood control program under our jurisdiction.

As you know, Public Law 566, the Watershed Protection and Flood Prevention Act of 1954, as amended by Public Law 1018 of August 7, 1956, authorizes the Secretary of Agriculture to assist local organizations to—(1) bring about the application of soil conservation and other land treatment measures to the land; and (2) construct headwater dams and other engineering works for flood control, irrigation, drainage, water supply, recreation, fish and wildlife enhancement, and other purposes.

Under the original act, Public Law 566, the engineering works were limited to those needed for flood control. Public Law 1018 broadened the engineering phase of the program to encompass the other purposes mentioned.

Subsequently Public Law 85–865 of September 2, 1958, provided for the determination by the Secretary of Agriculture of cost-sharing arrangements for fish and wildife features.

The Federal Government assists landowners and operators to install land-treatment measures through the regular nationwide programs of the Soil Conservation Service, Forest Service, Agricultural Conservation Programs Service, the Extension Service, and other Federal agricultural agencies. Assistance is also rendered in this program by the State agricultural services.

Consequently, the purpose of Public Law 566 and Public Law 1018 is to provide a legislative base for the engineering part of this program, and in practice appropriations made under this legislation are used primarily for planning and constructing engineering works, generally small dams for flood control or drainage projects. It appears that the reclamation of land by drainage and irrigation, and water supply, may eventually become major purposes of the program.

The Corps of Engineers considers this program as adopted by Congress, and broadened in scope under Public Law 1018, as an expression of the intent of the Congress and we intend to and have been cooperating fully with the Department of Agriculture and local organizations in carrying out the program and making it sound and effective.

We intend to work, and we have been working to bring about coordination which is needed between the Public Law 566 program and the flood control program of the Corps of Engineers so as to insure optimum river basin development.

When this legislation was under consideration by the Congress, the Chief of Engineers was called on to testify. He pointed out certain problems in coordination that would result from two Federal agencies being charged with responsibility for the engineering phases of flood control.

I would like to review the relationships that have been developed, and certain problems that have arisen, and the steps that our two agencies are taking to resolve them. In saying that, I want to stress the fact that there is very complete and close cooperation between us and the Department of Agriculture. We have problems arising from the fact that our laws are different, but we are working cooperatively to try to resolve those problems.

The term "watershed development" means different things to different people. At the outset, therefore, I would like to explain the basic nature of the watershed projects that are being carried out under Public Law 566, because it is this program most people think of when they talk about watershed development, or the watershed approach, or the watershed program.

There has been a good bit of magic developed around these two words and a good deal of emotion built up, but actually a watershed in the sense in which the word is used in Public Law 566 is only a small drainage area of a creek or other headwater stream. So, to avoid confusion I will use the term "river basin" for a large drainage area and "watershed" for a small drainage area.

A watershed under that definition is actually a model of the river basin. A watershed has all of the problems of a river basin, merely scaled down in size. The problems of a watershed are solved by

exactly the same means that are used in solving the problems of river basins, the only difference being one of scale. So, in fact, a watershed plan is simply a river basin plan for a small drainage area.

So far Public Law 566 projects, most of them, have been planned primarily to reduce flood damages in the valleys of creeks and other headwater streams. To accomplish this, principal reliance has been placed upon systems of reservoirs which catch floodwaters and release them slowly through what is normally an uncontrolled outlet.

Another frequently used measure is channel improvement, which improves the floodwater-carrying capacity of the stream. Since Public Law 566 was broadened in 1956 to encourage multiple-purpose projects, increasing emphasis has been placed on projects for the reclamation of land by drainage and irrigation, and for the development of municipal and industrial water supplies.

Flood damage reduction, reclamation, and the provision of water supply are, of course, accomplished by the construction of dams and other engineering works. So again I may say that the watershed program is basically an adaptation to the smaller streams of the country of the standard engineering approach which we have always followed in dealing with the problems of large drainage areas.

Watershed work plans prepared under Public Law 566 also present the soil conservation, forestry, and other land problems in the drainage area, and indicate what land treatment measures may be applied to the lands of the drainage area to alleviate sedimentation which would affect the operation of the engineering works proposed. These land treatment measures are expected to be put into effect, in the main, through the regular programs of the Department of Agriculture and through the State agricultural and forestry programs. However, watershed work plans do provide that certain land treatment measures should be accelerated for the protection and functioning of the engineering works. These measures are usually for the control of rapidly eroding areas which would not be brought under control soon enough through the normal procedure of the soil conservation programs.

These, though, do not represent a very large part of the Federal cost of the work proposed under Public Law 566. We have reviewed some 46 work plans during the past fiscal year and on those plans about 6½ percent of the Public Law 566 funds would be used for land treatment, which is not a very great percentage.

In preparing our plans for river basins, which involve major engineering works on the larger drainage areas, we also assume land treatment measures will be accomplished under the regular programs of the Soil Conservation Service, the Forest Service, and by other Federal and State agencies responsible for this kind of work. These assumptions influence our estimates of runoff and sedimentation and, in some cases, affect the design of our projects.

The basic difference is that we have no funds to make available to people for the programs.

In many cases, and in an increasing degree, and a degree which I think must increase and will increase, we must in our planning work cooperatively and jointly with other agencies, as in the case of the Delaware study and the Potomac River study, both of which are now underway, where we are giving full consideration to soil conservation measures and the potentialities of watershed protection work in up-

stream areas. We are doing that—we are actually not doing it, but we are having the work on that angle done by the Soil Conservation Service on a cooperative basis, and we are reimbursing them for costs which they incurred in working on our study over and above what they would normally incur in that river basin on their own studies.

As I say, watershed treatment means many things to many people. Back 20 or 30 years ago there was a very vociferous school of thought which felt that floods could be eliminated or at least greatly reduced by reforestation and by planting of grass and the application of other land-treatment measures. That thought was so strong in the minds of everybody that in the Flood Control Act of 1936 Congress gave the Department of the Army responsibility for the engineering plans for reducing flood damages and the Department of Agriculture responsibility for land treatment plans for retardation of runoff.

That was done in order that all possible measures of controlling floods would be given a fair break. But the work done by the Department of Agriculture under the 1936 act soon showed to the conviction of all those actually engaged in the studies, both in Agriculture and in the Corps of Engineers, that land treatment has very little effect on major floods. It can affect the land somewhat, but on the major flood it is not the answer. There is now general agreement with this finding in scientific and technical circles, and there is a growing realization that land treatment certainly can stand on its own feet. It is most essential and most vital to the continued prosperity of the country.

We must conserve our soil in order that we may continue to eat; but we do not need to justify soil conservation measures and soil treatment by the fallacious theory that it will stop floods. As a matter of fact it was the finding by the Department of Agriculture that land-treatment measures would not stop floods that led to the passage of Public Law 566, which authorizes the construction of dams and channel improvements to stop the floods.

I do not mean that critically, and I hope that I do not create the impression that I am being critical, because I think that the Department of Agriculture took a very courageous and forthright step in recognizing that its supporters who claim that land-treatment measures would stop floods were actually in error and that engineering measures were necessary to do that.

So that the watershed program is, under Public Law 566, actually and in fact a program for constructing small reservoirs and small channel-clearing projects and other engineering works in the drainage area of creeks and headwater streams.

The Federal Government has three agencies which are authorized to plan and construct small engineering projects: The Department of Agriculture, the Bureau of Reclamation and the Corps of Engineers. So the Federal watershed development program may be said to have three components. The Department of Agriculture carries out its segment of the program under the authorities of Public Law 566 as amended. The Bureau of Reclamation's contributions to the development of small watersheds are made under the Small Reclamation Projects Act of 1954. The Corps of Engineers component is authorized by the Flood Control Acts which, as you well know, provide broad authority for large and small projects for flood control and other purposes. And, in addition, we have special authority under Public Law 685, which is a very constructive act, and which I am

very happy that the Congress passed, under which he can undertake small projects with a Federal cost of less than $400,000 without specific authorization.

And, of course, many States have got programs on watershed development for engineering works for flood control and reclamation in small drainage areas. Pennsylvania, for example, is doing a great deal of work along those lines.

Then, of course, there are local entities such as conservancy districts and drainage districts and municipalities which undertake engineering development for the control of streams.

However, of all the components of the so-called watershed program, of course, the one under Public Law 566 is best known and has attracted the greatest public attention because of general support by conservation interests. And I think as time goes on it may well become one of the larger Federal engineering programs.

Effective though it is, it has created problems. Most of the problems are arising from the fact that the legislative authority under which we operate is different from the legislative authority under which the Department of Agriculture operates. I would like to discuss briefly four of those problems.

The first is the problem of coordinating the Public Law 566 plans with our overall river basing program.

Second, the problems created by differences in the authorizing and financing procedures, which complicate the joint planning and coordinated construction of interrelated works by us and by the Department of Agriculture.

Then the problem of deciding which agency should plan and build engineering works that more than one agency has authority to undertake. There has been created the problem of a local agency, a municipality, a State, and so forth, shopping around to see which Federal agency it can get the best deal from—and that is not sound practice.

Then there is the problem of eliminating the differences in the cost-sharing requirements between Public Law 566 projects and similar engineering projects undertaken pursuant to other legislation.

Those two problems, of course, are interrelated.

On the first one, on the integration of Public Law 566 plans and the overall river basin plans, the problem there is that the watershed or drainage areas of these small streams feed into our larger streams and make up the drainage area.

So that, throughout the country the Soil Conservation Service is planning and constructing upstream reservoir systems within river basins in which plans are also being made by the Corps of Engineers and the Bureau of Reclamation. Now obviously, for any given river basin there is one optimum combination of reservoirs of small, large, and intermediate sizes and other works such as drainage and levees, and so forth, which will most economically solve the flood control problem.

The basic problem of all water resource planning is to develop such a coordinated system. Obviously, this requires that we and the Soil Conservation Service work very closely in coordinating our planning activities, and must do everything possible to integrate our plans. Both the Department of Agriculture and the Corps of Engineers are

very keenly aware of that problem and we are working very hard on developing procedures to solve them.

An example of that is what we are doing in the Delaware and Potomac and Cape Fear Rivers where we are working closely with them simultaneously in trying to develop the overall final plan.

The problem becomes serious because there may be hundreds of small dams built under this program and they provide uncontrolled storage in upper watershed areas planned for the particular problem of the small creek. It may well be that when you get your initial flooding you fill these small reservoirs and they release the water at a moderate rate, and then you get your larger flood and the releases from those small reservoirs may well hit the main stem just at the wrong time, coinciding with the crest of the main river. That could cause serious trouble and it is a difficult thing to insure that the small watershed plans will not create that problem, because they are prepared more or less independently with the local organizations which are concerned only with the problem involved in their own creek.

One mechanism to correct that or to avoid that problem is the fact that we are required to comment on all of the work plans over a certain—all of the work plans that have to be approved by committees of Congress, and to state whether we foresee any conflict with our program. That is one method. It is not the final answer. But we are working with the Department of Agriculture to try to develop the final answer and to avoid the problem which I have just outlined; and I assure you we are getting the fullest cooperation from the Department of Agriculture.

Another problem is that there are different procedures for authorization, and that is one that worries me materially. Public Law 566 plans may be made and carried out promptly. Our projects, as you well know, take time. We must have a specific authority by law or committee resolution to study a problem. Under Public Law 566 the Department of Agriculture may study a plan at any time it considers that a plan is worthy of study. The problem is not so much getting the specific authority by committee resolution, because this committee has been generous in passing such resolutions, but its generosity in passing resolutions has not been quite matched by generosity on the part of the Appropriations Committee in providing funds for such studies.

We have to have money to study them and we have to have authority. Then, as you know, after we have completed a survey we may take no further action until the project which you recommend is authorized, except for our Public Law 685 projects, which I will discuss later, but in our normal projects of over $400,000, as you well know we must have the authorization. Public Law 566 requires only the approval of the Secretary of Agriculture when the proposed Federal share of the cost does not exceed $250,000 and no reservoir has a capacity of over 2,500 acre-feet. It only requires clearance by the committees of Congress when these limits are exceeded. Again I do not mean that critically, but I do want to point out that a sizable project under Public Law 566 can be studied and authorized and be under construction in less than a year. A sizable project under our authority, as you know, takes as much as 5 years because we have been getting an omnibus bill on the average of every 3 or 4 years.

That is a problem which again affects the thinking of local agencies in shopping around for their best deal. If they can get a project built by the Department of Agriculture in 1 year and started by us in 5 years, I would assume they would have sense enough to go to the Department of Agriculture. So that is the problem which can only be resolved by legislation.

Again I am not saying the Department of Agriculture is responsible for this, but it is the different laws under which we operate. We have one example of that. We have a little job down in Kentucky. The Soil Conservation Service has prepared a plan for improving the channels of streams tributary to Obion Creek. We have a plan for improving the main stem of Obion Creek. The Public Law 566 plan has already been approved and they can start building at any time. They have the authority and the money.

Our project is not yet authorized. If it is later recommended and authorized then we have to go back and get money. So that even if the project turns out well and we get it authorized and get appropriations it will still be several years. But the improvement of the tributary streams which the Department of Agriculture can do now will do no good whatsoever until we improve the main stem, and it may be years before we can get to it.

Of course, under Public Law 685 we do have a procedure which is directly comparable to the procedure for this which the Department of Agriculture has for their smaller projects. It has been very valuable. I think at some time the administration may request a little extension of it—possibly an increase in the upper limit of cost. I don't know. I think that if we did have such an increase it would be helpful.

On the division of work there is no fight between us and the Department of Agriculture actually. There is shopping around by local interests, but we have our authorities up to the upper limit of 5,000 acre-feet of storage for flood control, and so forth, which is the ceiling of Soil Conservation Service projects. We have equivalent responsibilities and authorities.

That has been bothering us, both of our Departments, because we do not want to be in the position of two dealers being propositioned by local interests wanting to buy a project. We have set up a task force in my office and in the office of the Soil Conservation Service to try to arrive at some arrangement within the framework of existing law, and to the extent possible under existing law, to minimize that possibility of shopping around.

We have just recently concluded an agreement covering urban protection in which they agree that the Corps of Engineers will be responsible for any levees and channel improvement, or works of that nature, constructed solely for the protection of urban areas, on the grounds of our mutual belief that the small watershed project was not primarily intended for towns. But either agency, of course, may still protect urban areas by constructing reservoirs. So this agreement applies only to channel clearing and to levees, but it is a step forward and I think it is proof that we are cooperating in an attempt to solve our problems insofar as they can be solved under the framework of existing legislation.

The fourth problem then is that of eliminating differences in cost-sharing requirements between our projects and the Soil Conservation Service projects. Under Public Law 566 the Soil Conservation Service must bear completely the construction costs for flood prevention, even though the works will provide benefits resulting from increased use of land, that is, land enhancement. So that the Soil Conservation Service does not and cannot require a local contribution because of land enhancement and we must require such a contribution under the provisions of the Bureau of Budget Circular A–47.

That fact has been brought to the attention of the Bureau of the Budget and we have suggested that there should be uniformity in cost sharing in similar projects. The President in his budget message stated that he planned to propose legislation to place similar projects on the same cost-sharing basis.

There are some other problems which we are considering. We got in bad trouble in the early days of the program with the people who were interested in the watershed program since we pointed out certain inadequacies, or certain facts which we felt to be inadequate in the engineering and in the design of some of the early projects. Those comments were made to the Soil Conservation Service. We discussed them with representatives of the Soil Conservation Service. We intended them to be constructive and they were accepted as such by the Soil Conservation Service, and our suggestions were implemented. However, some of the local enthusiasts knew about it and felt that we were trying again to sabotage the program. That is just not true. We are still trying to develop and improve our mutual techniques for the evaluation of benefits and to secure greater uniformity in this area.

This is one matter which is under consideration by the task force which our two agencies have established to work on differences.

We also get roundly abused and rightly so, because when the watershed work plans were first referred to—I say rightly so, but I do not believe that really—we found it impossible to review them in a 30-day period which is allowed for review before the plans could be sent forward to Congress by the Secretary of Agriculture. It was a new program and we had to establish a review procedure in Washington and in the field. There were problems which arose in many of the reports which took time to resolve. Again in self-defense I might say that other Federal agencies have 90 days in which to comment but we did not comment in 30 days during the first year of the program and we were accused again of trying to freeze projects and delay them by failing to comment. That was not true. It was just that it took time.

We did not have our procedures established and we worked out with the Soil Conservation Service again a deal whereby at the time that their local representative sends a plan in to their Washington office he gives a copy immediately to our district engineer which in itself saves 3 days in each of about six different message centers, and the district can review the plan during the time it would normally be coming to and from Washington through the various channels through which papers have to flow.

That has been most effective and during the past year we have reviewed 49 work plans, and although we have not quite made the 30 days, our average has been 34 days, and I do not think that is too

bad—20 of the 49 were reviewed in less than 30 days. We now have a working setup to give the projects prompt review which during the past year has been effective, and I think there will be no further problem there.

I have talked probably too long but I think that it is necessary to point out the relationship between our two programs and the need for clarifying legislation so that we can both operate on the same basis, which we would like to, and which we cannot do at the present time. Both the Soil Conservation Service and the Department of Agriculture as well as the Corps of Engineers are genuinely desirous of working together in this thing. We are not competing for work. But we do need help from this committee in the form of legislation which will permit us to operate along the same lines.

Thank you.

Mr. SMITH. Thank you very much, General Person. You have made a very helpful statement and we appreciate your promptness in completing it. Are you in a position to give us any specific recommendations about legislation?

General PERSON. I think the most important legislation would be cost-sharing legislation to put all Federal programs in the field of water resource development on the same cost-sharing basis. That I am sure is under consideration by the administration. In fact, the President in his budget message stated that legislation would be recommended. I have not seen the administration bill and, therefore, I am not able to comment on what should be in it.

Mr. SMITH. I agree and I am sure that the committee does, that there should be something in that program, and I think the committee has some ideas about the cost-sharing procedure that might enable your program to be closer in many respects to the type of cost sharing we receive in the Soil Conservation Service program.

To go back in relation to your evaluation of the Department of Agriculture watershed plans, do you have any specific funds allocated for that cost?

General PERSON. I think we do. Yes, sir; I think we have $50,000 in the last budget for that purpose.

Mr. SMITH. Do you have any problem with respect to that?

General PERSON. No, sir.

Mr. SMITH. Your statement emphasized primarily the watershed programs under Public Law 566. In relation to the overall work of the Soil Conservation Service and your work, how broad is the area of contact and cooperation between the two agencies?

General PERSON. It is very close and getting closer all the time.

Mr. SMITH. I am familiar with one very fine example of cooperation in the area of Mississippi where the program on the tributary streams of the Yazoo has been authorized by the Congress, wherein the Corps of Engineers worked up a plan in cooperation with the Soil Conservation Service which gives the Corps of Engineers an opportunity for a practical program and the Soil Conservation Service adopted and carried out its work on the surrounding tributaries. I think that is the kind of cooperation that I believe the Congress would like to see all over the country. I hope that the committee will have an opportunity to get some information about that type of example and I hope that the members of the two services will be able to arrange a similar type of cooperation where it will be advantageous.

You talked about authorization. In relation to the plans for surveys where you decide whether or not a project is economically feasible as compared to a similar evaluation rendered by the Soil Conservation Service, we have gathered from some of the reports we have that they perhaps consider factors in economic evaluation that you do not take into consideration. Have you compared that?

General PERSON. There have been some differences in economic evaluation. As I say we have a task force made up of representatives of the two agencies which is now at work trying to bring our procedures together.

Mr. SMITH. Are there any cases apparent where you have already had a project authorized, where the Soil Conservation Service program on the small watershed program under Public Law 566 has been proposed, and where the people in that area are taking the Public Law 566 project and asking for your project?

General PERSON. Yes, sir. There is one example at Lampasas, Tex., where we had an authorized project which would have provided complete flood protection but which would have required a substantial degree of local cooperation. The local interests requested a study by the Soil Conservation Service which was made, and it was found that a partial degree of protection could be provided by the Public Law 566 program without local cooperation. So our people and the Soil Conservation Service people held a joint meeting with the city and told the city that you could not build both projects; that they would have to decide which one they wanted. And they selected the one under Public Law 566.

Mr. SMITH. That is all I have. Mr. McFall, do you have any questions?

Mr. MCFALL. I was going to ask the general to comment on the most recent case we had here. I think it is in your State, Mr. Chairman, where a project was turned down by the Corps of Engineers and later developed by the Soil Conservation Service, and we had an explanation of it the other day. Presumably there was some change in conditions over a period of time.

General PERSON. That must have been. As I recall it our unfavorable report was made in 1950 and the Soil Conservation Service's favorable finding was made in 1958. So in the 8 years there must have been a change in the economy of the region.

Of course, we did not have enough detailed data on which to evaluate the change and had no authority to go back and restudy it, so I do not know what changes took place, but obviously there must have been some.

Mr. SMITH. Will the scheduling of some of these Public Law 566 projects make it necessary for you to resurvey some bigger projects where the Public Law 566 would lie within that field?

General PERSON. Not to any extent. We found that the vast majority of the projects which we have reviewed will not have any material effect on any of our authorized projects, or any of our projects under study, and in cases where they might have some effect we pointed it out to the Secretary of Agriculture in our letter.

Mr. MCFALL. I have one more question I would like to ask, Mr. Chairman.

Mr. SMITH. Go ahead.

Mr. McFall. Do you contemplate asking the Corps of Engineers for a series of suggestions along the lines of General Person's testimony concerning possible legislation that we might look at and consider?

Mr. Smith. What I had in mind individually, and what I was going to submit to the committtee at a later date, would be some appropriate legislation in the field and by proposing the legislation as a working outline we could bring forth comments from the Corps of Engineers in the way of a report, rather than asking them to start the idea. In that way we can get comments and proposals, and I hope we can get a tentative grasp of that before the end of this session of Congress.

Mr. McFall. Thank you, Mr. Chairman.

Mr. Smith. Mr. Mack.

Mr. Mack. Mr. Chairman and gentlemen, on these small and intermediate dams on the smaller streams in the watershed basin, are those dams equipped with floodgates for spillways through which the water can be released at will?

General Person. All of the ones I have any knowledge of have had uncontrolled outlets, which are designed to release enough water, or only enough water, or only so much water, as can be carried by the channel below the dam. Then they have in addition a spillway over which the water will flow in case of a major storm, which would otherwise overtop the structure.

Mr. Mack. If the Army Engineers had information of great precipitation in the upstream section, and as a result of that precipitation, there might be floods downstream, who controls whether water should or should not be released from those dams?

General Person. There is no control. It is an uncontrolled outlet. In most cases it is merely a culvert or pipe through the dam which is designed so as to release only as much water as the stream bed can carry without overflowing the banks.

Mr. Mack. If it were possible to control the release to flush out those retaining basins or reservoirs in advance, would that provide any material protection against heavy floods downstream?

General Person. I question that because they are relatively small. In total, with so many of them probably to be built in the future, it will be important, but for an individual one to have a control gate or a control outlet would require people to be stationed there at all times in order to control the gates; and in many cases people just could not afford that.

Mr. Mack. In large streams like the Columbia River the release of water from the great dams, if done in time, would be of very material help in lessening the impact of floods.

General Person. Oh, yes, sir.

Mr. Mack. What is the distinction between the local contributions under the Army Engineers' program for flood control and under the Soil Conservation Service? What local cooperation do the Army Engineers require and what does the Soil Conservation Service require?

General Person. The major difference is in projects where land enhancement benefits are involved, a drainage project, for example, or any project where benefits are divided between the prevention of flood

damage and the enhancement of land values. The land enhancement is based on the conversion of land to a higher use as a result of the provision of the flood control features.

Mr. MACK. Do the Army Engineers have one formula for that land enhancement and the Soil Conservation Service have another?

General PERSON. Yes. We require a cash contribution of 50 percent of the cost of the project attributed to the land enhancement benefits.

Mr. MACK. That is under the directive of the Bureau of the Budget much discussed under a previous bill?

General PERSON. Yes, sir.

Mr. MACK. Does that directive apply to the Soil Conservation Service?

General PERSON. No, sir. Public Law 566, as amended, with regard to the Soil Conservation Service has been interpreted by the legal staff of the Department of Agriculture as prohibiting such a charge. So their lawyers tell them that they cannot make such a charge even if they wanted to.

Mr. SMITH. Will the gentleman yield?

Mr. MACK. Yes.

Mr. SMITH. It was stated last week that that program was under the requirements of Circular A–47. We did not go into that and that is one of the points we have to enlarge with them again.

General PERSON. They do comply with A–47 insofar as it is under their authorizing legislation.

Mr. MACK. General, are the Corps of Engineers, the Soil Conservation Service, and the Department of Agriculture pretty well agreed on the nature of the reforms that should be made in the existing law?

General PERSON. I think so.

Mr. MACK. That is all.

General PERSON. I do not think we have solved all of our problems, but we are certainly reaching such a solution.

Mr. SMITH. Mr. Johnson.

Mr. JOHNSON. I have one matter here.

General, the other day when the Soil Conservation Service people were here they said that the projects were engineered for one flood in 100 years. I am thinking of the construction of small dams. When your people review those plans, do you look in to make sure that that feature is built into the small dam?

General PERSON. Yes, sir. To some extent. We have frequently commented that the proposed design—and, incidentally, the designs accompanying the work plans are very preliminary. They are not detailed designs in any way. But we have frequently commented that the proposed design appears to be somewhat less than adequate, and we suggest that in the actual engineering design phase that that comment be taken into account, particularly where they are for the protection of urban areas. We have not infrequently found that the structures proposed in the work would introduce an element of danger which we felt should be considered in the detail design of a structure.

Mr. JOHNSON. A project was mentioned here as an example. I forget the exact name of the project, but they said that all of their dams had been engineered to that extent, that is, for one flood in a hundred years, and they had maintained flood storage in the small reservoirs for that purpose.

I understood you to say earlier in your statement here that they did not do that.

General PERSON. I said we have not infrequently suggested to them that the preliminary design appeared to be somewhat less than adequate and they should consider it when they go into the detailed design phase. Of course, the 100-year flood is not a magic answer, because there are three storms which must be considered in designing a dam. One is the storm on which you base the design of your spillway, which must be adequate to carry the maximum possible flood. Otherwise your dam will fail. We determine that by taking records of storms which have occurred in the area, or in areas of similar meteorological conditions, and we center that storm which might occur in 100 or 500 or 1,000 years over the particular drainage area, and we route the flood resulting from the storm down through the basin. It is on that basis that we design our spillway, because we feel that we cannot build a dam that could fail if the maximum possible storm should be centered over the basin, because we would have created a catastrophe when eliminating a nuisance. So that is a spillway design storm.

Then we have what is known as our standard project flood, or, rather our design flood, which again results from the largest storm which can reasonably be expected to have a probability of occurring over the drainage area. Then we consider the project flood and that might be a 50-year flood, or a 100-year flood, or a 150-year flood, but it is designed to give the maximum possible protection at the least possible cost. So our project flood is never as great as our spillway flood. In the spillway flood we must protect the dam against failure.

Mr. JOHNSON. When they made that statement that they had engineered this to take care of the one flood in a hundred years, or whatever it was, I thought that was pretty safe.

General PERSON. It might be safe and yet in New England in 1955 we had the 500-year flood, and at Denison Dam in Texas and Oklahoma a year or two ago we had 1 week the 100-year flood and 3 weeks later we had the 150-year flood. So that is one thing we run into with local interests frequently. We say we are building for the 100-year flood and they say, "Well, here, why should we worry. That will not happen for a hundred years." But we can't guarantee that the 100-year flood won't happen tomorrow, or the 500-year flood, or the 1,000-year flood. I sincerely hope that we never get the storm in any of our dams for which we have designed the spillway, because if we do it is going to tear that country up pretty bad.

Mr. SMITH. Mr. Baldwin.

Mr. BALDWIN. General Person, when you mentioned that the Soil Conservation Service builds these dams with no control, as I understand it then you are pointing out that this is their standard procedure?

General PERSON. Yes, sir.

Mr. BALDWIN. You just have an automatic outlet which will accommodate a certain amount of water, and the rest starts piling up?

General PERSON. Right, sir.

Mr. BALDWIN. The theory is before it piles up to the spillway the storm will actually be over, so it actually will accomplish its objective?

General PERSON. Right.

Mr. BALDWIN. The two designed in my district, one in operation and one still in the design stage, are certainly on that basis. Some of the local people are starting to complain about one of these designs on the basis that it does not take into consideration any recreational possibilities, as far as water is concerned. In other words, with the automatic release the lake that is there will automatically go down and be completely eliminated so that there will be nothing impounded.

Do the Corps of Engineers have any uncontrolled dams of a similar nature?

General PERSON. Oh, yes, sir.

Mr. BALDWIN. You do?

General PERSON. Yes, sir.

Mr. BALDWIN. I ran into this argument by local groups that they want some impounding on a permanent basis so that they can use it maybe for boating, or fishing, or a combination of the two. What approach does the Corps of Engineers take to that problem?

General PERSON. That approach has been varying over the past several years, and it is rapidly, I think, going to be very heavily weighted in favor of providing a conservation pool. Frequently we do provide conservation pools. Of course, in all of our power dams we have pools which frequently we need as a seidmentation pool to provide space for silt which builds up over a 50-year period. In that case we get a free conservation pool which is available for recreation. But I think that recreation is so rapidly becoming an important factor in the economy of the country that we are going to, whether we like it or not—and I do like it—provide for recreation in our structures deliberately. Of course, we have authority to do that under the 1944 Flood Control Act, which provides that we will provide public access to our reservoirs. We have not yet been able fully to implement that, because in 1950, for example, I think we had about 13 million visitors to our reservoirs. Last year we had 95 million visitors, which is far more than the National Park Service had. It is becoming a very important feature and I think it is rapidly approaching the stage where there will be a Federal interest in it. I think it is approaching the stage where we should assign a monetary value to recreation in evaluating the reservoirs.

Mr. BALDWIN. Could I follow up this monetary value for a moment?

As I understand it, today you are not authorized to establish any monetary value for recreational use?

General PERSON. That is not quite true, sir. There is nothing in our law to prevent us from doing it.

Mr. BALDWIN. Do you do it?

General PERSON. We have not normally done it. Once or twice we may have done it. We plan to do it in two studies which are now underway and which we will submit to your committee.

Mr. BALDWIN. Will those be the first you have actualy evaluated from a monetary standpoint?

General PERSON. We have evaluated it on certain occasions.

Mr. BALDWIN. Prior to this time?

General PERSON. Yes. There is nothing to prevent us from doing it, but I do not think we have been doing it enough, in other words.

Mr. BALDWIN. But I take it since the Soil Conservation Service does not have any impounding provisions, that in effect they do not

have any authorization in their law to give any credit for recreational value?

General PERSON. Oh, yes, sir, they do. Only fish and wildlife benefits. But normally their dams are small and if they have a control outlet you must have an attendant. For a very small dam built on a farmer's property the cost of paying an attendant would in most cases probably be prohibitive. However, there is nothing to prevent them, I do not think, from doing the same thing except economics.

I would like to ask Mr. Page to comment on it. He is my vice president assigned to recreation.

Mr. PAGE. As I understand it, Mr. Baldwin, the small dams of the Soil Conservation Service are built on the property of a farmer, or maybe a couple of farms. The land remains in their ownership.

Mr. BALDWIN. Subject to an easement?

Mr. PAGE. Yes. Subject to an easement—some kind of an easement. I think that is perhaps the stumbling block to them in evaluating recreation and providing public recreational facilities.

Mr. SMITH. Will the gentleman yield?

Mr. BALDWIN. Yes.

Mr. SMITH. At that point, of course, most of that construction is so small that they are on one individual farm, and it is very rare that you have more than one property ownership. One of the chief arguments that the local groups use in getting rights-of-way and easements for the small structures is that they are creating an ideal recreation center for the farmer. That is how they get a lot of these easements free and without any cost. That argument is being used very effectively by the Soil Conservation Service to cut their costs. In that way they do not have to add any cost for the acquisition of land. They get it by donation. By donation they get the main part of what they need, and as for the farmer who does refuse to grant it, they must acquire that. The overall average acquisition cost is so low that they only have to buy a few items.

Mr. BALDWIN. I have one other thing.

General, would you explain how you figure your budget estimates for funds for your small projects under $400,000? When you come in with your budget request each year for those projects, what is your procedure in determining how much in the way of funds you are going to need in the next 12 months, when these little projects are in all sorts of stages and they do not go through on congressional authorizations?

General PERSON. It is largely a matter of judgment. For one thing, we cannot ask more than $10 million, which is the upper limit for Public Law 685 in any 1 year, but we found that $4 million will normally take care of the projects we have so far encountered.

Mr. BALDWIN. Up to the present time have your appropriations been adequate for the number of small projects which have reached your approval and been ready for construction?

General PERSON. Yes, sir.

Mr. BALDWIN. So there has been no timelag from the standpoint of need for appropriations?

General PERSON. Off the record.

(Discussion off the record.)

Mr. BALDWIN. When you say you submit normally a figure of what you feel are your requirements, I take it the implication of your state-

ment must be that you must have come in with a request this year but it was dropped out by the Bureau of the Budget because of the no new starts policy.

General PERSON. No, sir. I do not think we actually requested it in our budget formulation. We normally submit our request for continuation of work and then in the early fall we are given criteria on which to base requests for new starts, and last year we were not given such criteria.

Mr. BALDWIN. In other words, you received instructions this year that there would be no new starts of either large projects or projects under $400,000?

General PERSON. That is right, sir.

Mr. BALDWIN. Let me follow that up. I take it from what you say if any projects come in for approval prior to July 1, your appropriation for fiscal year 1959 will probably be enough to cover it?

General PERSON. Yes.

Mr. BALDWIN. As to the projects that come in for approval after July 1, which will be in fiscal year 1960, do you expect that you will have any carryover funds from 1959 that can be used for them, or will you be barred unless the Appropriations Committee releases those funds?

General PERSON. We will have some carryover, but not sufficient to carry on the program for a year.

Mr. BALDWIN. Will you be able to use the carryover you have? There is nothing preventing that?

General PERSON. That is right. It is available until expended.

Mr. BALDWIN. But when that is used up you will have to wait on the remaining projects until July 1, 1960, unless the Appropriations Committee does something to change the situation; is that right?

General PERSON. Yes, sir; that is correct.

Mr. CRAMER. Will you gentlemen yield at that point?

Mr. BALDWIN. Yes.

Mr. CRAMER. How much is expected to be carried over?

General PERSON. I do not have that figure in my mind, but I can provide it for the record if I may.

Mr. BALDWIN. One more question. When you say you did not have any instructions as to new starts and therefore you did not submit any request for funds, can we get an idea from your experience? Do I understand you correctly that for fiscal year 1959 your estimate was that about $4 million was what you believed you would require and that has proven true?

General PERSON. I think a program of about $4 million a year on the present status of the development of the program is adequate. When the program becomes more widely known to local interests and more widely recognized, that will increase, but at the present time I think $4 million will be an adequate amount.

Mr. BALDWIN. And you are referring both to 1959 and 1960?

General PERSON. Yes, sir.

Mr. BALDWIN. From the standpoint of your anticipation?

General PERSON. Yes, sir.

Mr. BALDWIN. Thank you.

Mr. SMITH. Mr. Wright.

Mr. WRIGHT. General, I was interested in your comments about the disparity between the timelag in the Department of Agriculture—

which I believe you said under Public Law 566 can study and put into effect a pending program within a year—and the program under the Corps of Engineers. I think I can understand why, as you suggested, a community which is anxious to get something done in making this comparison might prefer to have a structure built by the Department of Agriculture even though it might not be a completely adequate structure.

If I am not mistaken a study was undertaken which revealed that the average time which lapses in the United States as a whole between initial authorization and the final construction of a Corps of Engineer project is 10 years and 8 months. Do you have any recommendations for speeding that up? Is there anything we in the Congress could do to make it possible for you to complete these projects sooner or to eliminate some of the radtape and the bureaucratic maze that may exist to slow these things down?

General PERSON. Yes, sir. One thought is I feel if the upper limit of cost of Public Law 685 projects could be raised from $400,000 to $1 million that would certainly take care of many more of our urgent problems.

Mr. WRIGHT. That would help.

General PERSON. And if I could say something off the record?

(Discussion off the record.)

Mr. WRIGHT. That would help in the case of those that fall within the $1 million maximum limit.

General PERSON. Yes, sir.

Mr. WRIGHT. Then you folks would be free to go ahead and begin construction on these projects without recourse to this rather burdensome procedure.

General PERSON. Yes, sir.

Mr. WRIGHT. In regard to those that would have to come under an omnibus bill anyway, is there any way that Congress could make it possible to speed up the presentation of reports after a survey has been completed? I have in mind, for instance, a survey now being completed. Assuming that we have an omnibus bill of some sort, let's say this year, the labyrinth through which this Corps of Engineers report must go makes it almost impossible for us to anticipate that we could get it here by the time we could get ready to act on an omnibus bill.

General PERSON. That is true, sir.

Mr. WRIGHT. Follow me through and see if I understand it correctly. I may not have it exactly right in my mind. The Corps of Engineers having completed their survey of a given area which they were directed by this committee to survey, and for which funds were appropriated, then must submit that survey from the district engineer's office to the division engineer's office from which it is submitted for comments to the Bureau of Reclamation and the Department of Agriculture.

General PERSON. Not yet, sir.

Mr. WRIGHT. No?

General PERSON. You are jumping the gun. It first comes into my office for a preliminary review and then it goes to the Board of Engineers for Rivers and Harbors. Then after our preliminary review and submittal to the Board of Engineers for Rivers and Harbors we authorize the publication of a public notice by the division engineer outlining what in general is the gist of the report and giving

local interests an opportunity to request a public hearing before the Board of Engineers for Rivers and Harbors. That is very rarely exercised. It happens half a dozen times a year. But normally it goes to the Board and then the staff of the Board of Engineers for Rivers and Harbors analyzes the report and sends the report out to the members, and they should have 30 days at least to study the report before coming in to act on it.

Then the Board of Engineers for Rivers and Harbors meets normally every 2 months. Following action by the Board of Engineers for Rivers and Harbors it is sent back to the Chief of Engineers for his review, and at that point it is sent to the States and Federal agencies for their comments. They are authorized 90 days in which to comment. Theoretically, if the 90 days have passed without comment from the State or Federal agency we could submit the study anyway.

Normally, if we have not received a State comment we wait until we get it, because I feel it is most important if you are building a project in a State to have the comment of the State government on the project before you submit it to the Congress.

Once we have all of those reports, then it goes to the Bureau of the Budget for comment as to the relationship of the project to the program of the President. And finally, at long last, it comes to the Congress.

I would say it takes anywhere from 5 to 9 months, and probably closer to 9 months from the time it gets to Washington until it gets to your committee in Congress.

Mr. WRIGHT. Here is the thing which is awfully hard sometimes for people to understand. I have in mind a project which I will mention because it is symptomatic. In 1957 we had these floods in the Southwest to which you referred—the 150-year flood that overran the Denison Dam and did a lot of damage in the metropolitan area of Fort Worth, which I represent. At that time I was very anxious to get something started and this committee was generous enough to pass a survey resolution and we then were able to get an amount set aside in that year's appropriation to start a survey, and last year again to get a little more so that the survey might be completed.

The survey has now been completed at the district level. It has been 2 years. As things normally go it has not been dragged out. It has moved along as smoothly as one could expect under the procedures that we follow. But now the district engineer has made his report and the local interests know of it. Here I am sitting up here and they say, "Well, we sent old Wright up there and he has gotten on that Public Works Committee, and what is he doing?"

General PERSON. They want a ground breaking ceremony.

Mr. WRIGHT. Yes. They want somebody out there with a shovel or a bulldozer, or something doing some work. They say, "My Lord, Jim, we had this flood 2 years ago and we've been sitting here chewing our fingernails off for fear it was going to happen again, and you're sitting up there not doing a thing. What are you going to do for us?" And I sit up here trying to explain it.

General PERSON. There is no possible way to get them to understand it. I have tried to explain it and I cannot do it, but I think it is important and I think the time we lose is certainly embarrassing to you and frustrating to the local interests. But I think the review by the Board of Enginers for Rivers and Harbors is an important thing.

It is a completely independent board. It does not work with the Chief of Engineers and it can recommend something he is violently opposed to, but it is made up of good people and intelligent people who take it very seriously. I think it is important to have such an independent review, because competent though most of our district engineers are, it is easy when you are very close to a project to become enthusiastic about it, and enthusiasm may on occasion temper judgment.

So I think an independent review is necessary and I think it is most important that the State and the other Federal agencies have an opportunity to give it a careful study. I do not think 90 days is too long for that because it is going to certainly affect the State very directly and it may well interfere with programs of other Federal agencies.

So I think that is necessary. As General Somervell said in the early days of World War II, "No matter how much science has progressed, it still takes 9 months."

Mr. WRIGHT. That satisfies me—or, I should say that does not satisfy me, Mr. Chairman, but that is all I have at this time.

General PERSON. No, sir, it can't; and you cannot satisfy your people.

Mr. SMITH. Mr. Schwengel.

Mr. SCHWENGEL. First I want to say, General, I appreciate your testimony. It is a fine contribution toward our consideration of this very serious problem with which we are confronted and it will serve as a good starting point. Perhaps, as you say, there is a great desire to work together between the three groups that have to work together in this important problem.

General PERSON. Yes, sir.

Mr. SCHWENGEL. This one question occurs to me now. What duplication, if any, could be eliminated to get them to work together even better; or is there duplication at the present time?

General PERSON. I do not think there is any particular duplication, sir. I think the problem is partially one of perfecting our coordination and largely one of eliminating the legislative differences, because they normally, I think, can in most cases use civilian engineers. I do not know how fast their own engineering organization is building up but I think it would be a mistake for us to take on their engineering, and we are certainly not trying to get it from them.

Mr. SCHWENGEL. Is it the fact that under Public Law 566 they can proceed faster than you can?

General PERSON. Yes, sir.

Mr. SCHWENGEL. Will it cost more to complete an entire project like the one you referred to in the river valley where the people in the upper part can go ahead under Public Law 566? Will the fact that they are doing that cause any duplication or increase the costs later?

General PERSON. No, sir. And if in any case we find that it would, in our review of the work plan which is submitted to us, we would make that comment, and I am sure that the comment would be accepted.

Mr. SCHWENGEL. I have here a statement by Mr. Norman J. Fuqua, the president of the National Association of Soil Conservation Districts. I do not have his statement before me but I recall his making the statement to the effect that through the soil conservation program

they were able to save a flood control cost in the area of $100 million in Oklahoma and Arkansas. Are you in agreement with that?

Mr. SMITH. What was that statement?

Mr. SCHWENGEL. There was over $100 million in flood control cost saved because they were able to have this soil conservation and watershed program.

General PERSON. I am afraid I do not know what he was referring to. I will say this: That the land treatment measures and soil conservation measures, as such—not the little dams or channels, but the effort which is being made, has been made so ably by the Department of Agriculture in preventing erosion and preventing our topsoil from being washed off of the farms and kept what we need to grow food from being deposited behind our dams, that in my opinion it is one of the best programs that the Federal Government is engaged in from a purely selfish viewpoint, because I am fond of eating and I am fond of keeping the dams free of sediment.

Mr. SCHWENGEL. Had we had our soil conservation program before we built the dams on the Mississippi River, for instance, could we have avoided the silting behind those dams?

General PERSON. I do not know. Would you comment on that, Carter?

Mr. PAGE. I do not know exactly what dams you refer to, Mr. Schwengel, but soil treatment practices on the watershed will undoubtedly reduce sedimentation, though I think it is not likely we can prevent all of it. It is a tremendous country and it takes time to make these measures effective all over the country. There are many parts and many areas of partly eroded land, and under normal farming practices it is a very slow procedure to get these measures into effect.

Mr. SCHWENGEL. I recall, and I believe, General, you wil agree, when we were building the dams up and down the Mississippi River, one of the arguments of building the dams was that it would have the effect of controlling floods.

General PERSON. Yes, sir.

Mr. SCHWENGEL. Now we have found that actually what has happened——

General PERSON. Not the navigation dams. We have never made any claim for them controlling floods, because, as you know, most of our dams are movable or gated, and when the river gets up we open the gates and the dams form no obstruction to the flow.

Mr. SCHWENGEL. But the point is, you cannot have much water storage in any of these dams and cannot empty out much water because of the silt. Is that not true?

General PERSON. I do not think that is a factor on navigation structures except to the extent that the siltation, the normal movement of sediment downstream, does require maintenance dredging to keep the 9-foot channel. But the navigation structures on the Mississippi and Ohio Rivers were never designed to have any effect on floods.

Mr. PAGE. The Mississippi and Ohio Rivers are both fairly clear streams. They are not heavy sediment carriers—the upper Mississippi.

Mr. SCHWENGEL. Maybe you did not make that statement, but the public is certainly reminded often in the newspapers about cooperating with these dam programs, and that by doing so we have helped to solve the flood problem down the Mississippi River.

General PERSON. I think that may have been from overly enthusiastic proponents of the project. I am sure no engineer worthy of the name would have ever made a statement that a navigation dam would have any effect on floods, except to the extent it will cause a little pileup at the piers similar to a pileup at a bridge pier. So the very negligible effect would be adverse rather than otherwise.

Mr. SCHWENGEL. That is all.

Mr. SMITH. Mr. Hull.

Mr. HULL. Mr. Chairman, I do not have any questions, particularly, but I would like to compliment General Person on the lucid and analytical presentation he made this morning. I, for one, am going to regret his time of retirement, as all of us, when he goes to greener pastures because I think he has done a terriffic job in the position that he has. I believe one of the vexing problems we have as he pointed out was the cost ratio under these different formulas.

Mr. CRAMER. Following up what the gentleman from California said concerning recreation, do I understand that the projects you are considering are including that as part of the benefit? If so, your presentation of that to this committee and our acceptance of it would then set the stage for further consideration of recreational aspects of projects of that nature under Public Law 685. Am I correct?

General PERSON. No. Not under 685. I was referring to our survey report study.

Mr. CRAMER. How about those projects in the future?

General PERSON. That might well be. I had not thought of that, but that might develop.

Mr. CRAMER. The reason why I asked is: With respect to other types of projects such as rivers and harbors, and dams, and so forth, do you have authority in those types of projects to consider recreation?

General PERSON. For navigation projects. Yes, sir. We have constructed many small harbors primarily for recreational craft and we require local contribution based on our so-called small-boat formula. In other words, they share about 50–50 in the cost. That will be another factor which may make our consideration of recreational purposes not too ardently desired by local interests, because if we assign a monetary value to recreation we will probably have to suggest a local contribution in recognition of it, and that is not always popular.

Mr. SMITH. Will the gentleman yield?

Mr. CRAMER. I yield.

Mr. SMITH. How will you select it? At the dams on the North Mississippi, on the Yazoo, they contributed a large share of the benefits, and half of the visitors come from Memphis.

General PERSON. That is very true. Where the benefit is national or Federal, and where the visitation is from all over several States, then I think it is appropriate for much of the cost at least to be Federal cost. But there is a local benefit which I have not thought through carefully because we have not gone into the survey yet, but I do not think you could get any local county or drainage district or levee district to contribute. Still I think it might be appropriate for the State to contribute because the States are contributing very materially right now to the development of recreation.

We spend about $10 million and the States spent over $130 million. So they spend 13 times as much as we have in developing the recreational facilities of our projects.

Mr. SMITH. That is about what I was to lead up to. The contribution on recreational development will have to be of that type where the State and those desiring it, and things like that, join in building up the facilities for the recreational development.

General PERSON. Yes, sir. And their participation in that respect is growing. As I say, they have already spent 13 times as much as we have and they are building more every day because it is good business.

Mr. CRAMER. In any of these dam projects have you included—and I understand you have not—this recreational feature in your survey?

General PERSON. We have. Yes, sir. In a few cases.

Mr. CRAMER. In a few cases?

General PERSON. Yes, sir.

Mr. CRAMER. The reason why I am asking you is, there have been some bills introduced in that field suggesting that in all public works projects recreation be considered.

General PERSON. Yes, sir.

Mr. CRAMER. I presume you are giving consideration administratively to that suggestion. Is that right?

General PERSON. Yes, sir. That is correct.

Mr. CRAMER. That is all.

Mr. SMITH. Mr. Mumma.

Mr. MUMMA. General, when we were talking about appropriations you had some remark that you did not get any. Was that just in reference to Public Law 685?

General PERSON. Yes, sir.

Mr. MUMMA. I remember you were talking to a group of Pennsylvania Senators and Congressmen and on pretty nearly every item in the budget they asked you if that was enough and you made the statement, "That is all we can use."

General PERSON. Yes, sir. I think we have a very good budget this year for our continuing projects.

Mr. MUMMA. Is Sinnemahoning Dam a State project or a Federal Government project? I am referring to the Sinnemahoning in Pennsylvania.

General PERSON. That must be State.

Mr. MUMMA. I notice they have a lot of recreational facilities up there like swimming. It seems to me that in a flood-control dam the water level would be carried too high all the time because if you get a flood the idea is to have the water basin fill up first.

General PERSON. In designing a multiple-purpose project where we have storage and water conservation for electric power or recreation and for other purposes we design that dam so that the flood-control storage is never encroached upon. We always have enough flood-control storage to take care of our design flood, and the other storage is in addition to it. In other words, a bigger dam is needed to take care of the other purposes.

Mr. MUMMA. You can have a change in the swimming level of maybe 15 feet.

General PERSON. In some cases.

Mr. MUMMA. I notice that in that particular dam. That is all.

Mr. SMITH. Thank you very much, General Person.

General PERSON. Thank you, sir.

(Whereupon, at 11:45 a.m., the subcommittee adjourned subject to the call of the Chair.)

SMALL WATERSHED PROGRAM

FRIDAY, MAY 22, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:30 a.m., in room 1302, New House Office Building, Hon. Frank E. Smith (chairman of the subcommittee) presiding.

Mr. SMITH. The Subcommittee on Watershed Development is in session to hear the Soil Conservation Service representatives in regard to three projects which are submitted to the committee for approval.

We will hear from Mr. Hollis R. Williams, Assistant Administrator.

STATEMENT OF HOLLIS R. WILLIAMS, ASSISTANT ADMINISTRATOR, ACCOMPANIED BY CARL B. BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR, AND JOHN H. WETZEL, DIRECTOR, WATERSHED PLANNING DIVISION, SOIL CONSERVATION SERVICE—Resumed

Mr. WILLIAMS. Mr. Chairman and members of the committee, I have here with me today Mr. Carl Brown and Mr. Jack Wetzel, and I am going to ask them, with the permission of the committee, to present the various aspects of these watershed projects. If it is in keeping with your wish I will ask Carl Brown to take Sulphur Creek supplement in Texas first.

SULPHUR CREEK WATERSHED

Mr. SMITH. Mr. Brown.

Mr. BROWN. Mr. Chairman, this is the Sulphur Creek watershed at Lampasas, Tex. This is a supplement to the work plan which was originally approved by this committee. It is one of the first work plans which came before the Public Works Committees under the provisions of Public Law 1018 which was enacted in 1956.

There is an interesting history to this and I would like to explain how it is that we have a supplement up here because it is the first instance in which a supplement to an existing plan has been submitted to the Congress. I might say that this supplement is sponsored by the same local organizations which sponsored the original project; namely, the Hill County Soil Conservation District and the Lampasas County Water Control and Improvement District No. 1, a local organization formed under the provisions of the Texas State law which

authorizes the formation of these local districts which have taxing powers and powers of eminent domain and powers to construct and operate and maintain such improvements.

The local organizations have submitted this supplement and it has been concurred in by the Secretary of Agriculture and has been transmitted through the Bureau of the Budget, which has approved it.

This supplemental plan has been prepared to strengthen and make more adequate the level of flood protection provided to the city of Lampasas. The work plan for the presently approved project, which has now been constructed or is virtually completed on the Sulphur Creek project, was signed by the sponsoring local organizations and submitted to the Soil Conservation Service on May 2, 1957. It was placed in interagency review and an advance copy was furnished to the Bureau of the Budget on May 17, 1957.

The original project on Sulphur Creek, that part which is now completed, are these structures which are shown in a red tint here; namely, structures Nos. 1, 2, 3, 4, and 5. All contracts have been let and, except for some of the minor finishing-up stages, they are now in place and are functioning.

With reference to these dates which I just gave, I would like to call attention to the fact that on May 12, 1957, a flood of unprecedented magnitude hit the town of Lampasas causing the loss of five lives. The Corps of Engineers and the Soil Conservation Service immediately instituted a joint flood damage survey which showed an estimated $5,590,650 of flood damages from that one occurrence.

The U.S. Geological Survey concurrently estimated the peak flood discharge through the town of Lampasas to be 74,600 cubic feet per second, 2½ times larger than the maximum previously reported flood flow prior to that.

Prior to 1957, major floods had occurred in Lampasas in 1873, 1899, 1908, 1913, 1918, 1935, 1936, and 1944. So there has been a history of repeated flooding. Accurate hydrologic records have been available only since 1933. The largest reported flood of record prior to this flood in 1957 occurred on September 27–28, 1936. That was the basis of our original hydrologic calculations in preparing the previous work plan. It was estimated from the then existing hydrologic data that were furnished that that flood would have a frequency of once in 54 years in a 100-year series.

The original watershed plan was designed to provide for 99-percent reduction in flood damages from floods up to and including the 100-year frequency event as calculated on the basis of the then existing hydrologic records.

The joint survey of the Corps of Engineers and the Soil Conservation Service after the May 1957 flood, however, showed that the original plan, consisting of the five structures which I have pointed out, would have left a condition in which at least $1 million of the experience damages would have still occurred and would have left a condition in which there was a remaining hazard to loss of life.

Economic studies made in connection with this supplemental plan have shown that the average annual damages, taking into account the flood of 1957 magnitude, would be $80,232 as against a previous estimate of $52,285. The revised hydrologic calculations placed the flood of 1957 at a frequency level of once in 238 years. It correspondingly

reduced the frequency level of the 1936 flood to that of only a 17-year flood.

Therefore, after consultation with the Corps of Engineers and the local organizations, an agreement was reached that the original plan would be processed even though the flood had already occurred. It would be processed in order that construction might be started as soon as possible on the first unit of the plan—the first five structures—and that a supplemental plan would be prepared to strengthen the level of protection, and that is the plan which you have before you now.

The new plan provides for five additional structures as shown in the yellow tint on here. Those five additional structures, together with the original five, will now provide complete protection for the city of Lampasas, Tex., for floods up to and including the magnitude of that in 1957. This present plan has a benefit-cost ratio of 1.3 to 1 as compared with the original benefit-cost ratio of 1.57 to 1.

I believe that, in substance, is the story on this. If there are any questions, we will be glad to answer them.

Mr. SMITH. Thank you, Mr. Brown. That is a good presentation of this item. The one thing I was very much interested in is the fact that the basic purpose of this, or the major benefits of this project, will obviously be to protect the city of Lampasas. It is interesting that it is a decision jointly of the Soil Conservation Service and the Corps of Engineers that it could best be handled as a Soil Conservation Service project.

Mr. BROWN. That is right.

Mr. SMITH. That is the only comment I have. Are there any questions? Thank you very much, Mr. Brown. We will take the next one, Mr. Williams.

Mr. WILLIAMS. Mr. Chairman, our next project will be presented by Mr. Brown, also.

FRYE CREEK-STOCKTON WASH WATERSHED, GRAHAM COUNTY, ARIZ.

Mr. BROWN. The next project we will explain will be the Frye Creek-Stockton Wash watershed in Graham County, Ariz. This is the first project coming to the Congress from the State of Arizona. This work plan was prepared jointly by the city of Safford, the town of Thatcher, the Gila Valley Soil Conservation District (which covers this entire area), the Soil Conservation Service, the Forest Service, and the Bureau of Land Management of the Department of the Interior. This work plan covers a watershed area of the area lying south of the Gila River comprising 153,714 acres, or 240 square miles, entirely in Graham County, Ariz.

The flood-plain area, subject to damage, which is shown on the hatched area here, comprises 10,552 acres of valuable irrigated farmland, irrigation canal systems, the city of Safford, the town of Thatcher, U.S. Highways 70 and 666 (which are important arteries of transcontinental travel), a number of county highways, and a branch line of the Southern Pacific Railroad.

The work plan proposes a project for watershed protection and flood prevention to be installed over a period of 5 years at an estimated total installation cost of $4,946,894. The Federal share of that cost will be $4,462,602, or 90 percent. The non-Federal share of the total cost will be $484,292, or 10 percent.

In addition, of course, local interests will bear all of the costs of operation and maintenance estimated at approximately $25,000 annually.

The purpose of the plan is to reduce the floodwater and sediment damages to this area shown in hatched lines—the area here on this map. The land treatment work remaining to be done in the area is comparatively minor in extent. It amounts to only $110,000 of cost, all of which is on the national forest and all of which in this event will be Federal costs because of that fact.

The land treatment works shown by these patterns in here which include access trail developments, road construction and fire protection, and minor gully control work to reduce the sediment contribution to these structures, will be carried out by the U.S. Forest Service.

The structural measures of control under the plan in this area are these blue floodwater detention structures shown on the map here. Those six structures will have a total capacity of 10,460 acre-feet of floodwater detention. There will be included in the project channels developed from the outlets of these structures down into the Gila River to carry the outflow water safely without erosion to the main stream channel.

The estimated average annual benefits of this project will be $285,478. It has a benefit-cost ratio of 1.5 to 1. It will fully protect against damages from floods up to and including the 100-year frequency flood in this area.

I believe that is the general summary, Mr. Chairman, of the nature of this particular project.

Mr. SMITH. Are there any questions?

Mr. MCFALL. Yes, I have one question, Mr. Chairman. Is not the cost of this thing a little high, Mr. Brown? You have structures here that are only holding back 10,000 acre-feet of water and you have a cost of $4½ million plus. As a matter of fact the whole thing comes to just about $5 million.

Mr. BROWN. Yes, that is the correct figure, sir. The actual construction cost not including the engineering services and the lands, easements, and rights-of-way costs, and so forth, is divided between the six structures and the 14.9 miles of channel improvement. The channel improvement going through highly erosive alluvial soils here will be a fairly expensive item in the project. The floodwater retarding structures will have an estimated contract cost of $2,109,000. The 14.9 miles of channel improvement will have an estimated cost of $1,238,305.

Mr. MCFALL. In other words, you have to build a concrete structure for 14 miles approximately; is that it?

Mr. BROWN. Well, it will be a lined channel; yes, sir. It will not be a solid concrete channel but that will be a lined channel and the channels will require protection in that area. That does make a fairly substantial cost and yet there is a high concentration of values in this 10,000 acres, including the two urban areas involved here.

There are a total of about 8,000 residents in this area in addition to the many facilities for irrigation in this very intensively cultivated area. It is one of the most intensively cultivated agricultural areas in the entire State of Arizona.

Mr. HULL. How many acres are involved in that irrigation?

Mr. BROWN. Well, the total area here is 10,000 acres and I would judge that 7,000 or more of those would be farmland areas.

Mr. HULL. Tillable acres?

Mr. BROWN. Yes; and this area is virtually all in cultivation here except for the part that is in urban use. You see, the city of Safford has a population of about 5,000 people and the town of Thatcher about 1,500 and this community of Gila about 500, and 500 other rural residents live in the area below this high-line canal which brings in the irrigation water supply shown on here.

At certain periods of the year the population is very materially increased by the large amount of transient labor which is brought in there for harvesting purposes.

Mr. HULL. Their economy then is based on their farming in that particular area?

Mr. BROWN. That is correct, entirely. This area also has a considerable amount of tourist trade, as you might imagine from its location. It has one large cotton gin, a dairy manufacturing plant, a flour mill, a fertilizer plant, and a meat packaging plant located in the damage area. Those are commercial enterprises. Also at Thatcher the State junior college has been subjected to severe flood damages in the watershed. This affords protection to that State-owned facility.

Mr. HULL. What is the frequency of floods in that particular area?

Mr. BROWN. There have been recorded floods in this area in 1880, 1891, 1905, 1906, 1914, 1915, 1916, 1918, 1920, 1925, 1939, and 1944. So it has been subject to repeated flooding. The direct average annual damage by floodwaters to crops and farms is estimated at $62,674 annually. The damages to residential areas or residential properties are estimated at $13,595 annually, and business and commercial and transportation damages are estimated at $29,743 annually.

In addition to those floodwater damages there is a total sediment damage which is calculated on the basis of what it takes to clean up the sediment and remove it from highways, property, homes, and buildings and plow up the farmland—$110,803 annually. So it has been an area experiencing very high damages and it has been an area in which there have been repeated attempts by local levees and diversions, and so forth, over the past 20 years to accomplish some measure of flood control, but this has been the first comprehensive plan that has been prepared.

Mr. HULL. Mr. Brown are these so-called flash floods that this area is subject to?

Mr. BROWN. That is right. They are so-called flash floods occurring from thunderstorm conditions, usually in the summer months.

Mr. MCFALL. What is an average flash storm? How many inches of rain do they experience?

Mr. BROWN. I am afraid I do not have that right at my fingertips here, Mr. McFall. I know from my personal experience that they can get pretty bad.

Mr. MCFALL. I do not think it is really necessary, Mr. Brown, to have the exact amount. What I was trying to bring out is that these flash floods do come with probably increasing intensity. I am thinking of one down in Texas when 18 inches of rain hit there last month; wasn't it? Are they subjected to conditions like that?

Mr. BROWN. I would say that this is not in a belt of the same intensity and amount as you would find in that section of Texas. That is probably the highest or most intensive rainfall section in the United States, that southern plains country there in Texas. But I would suspect it would be not unusual at all to have something like 5 and 10 inches during a particular storm period.

Mr. SMITH. Mr. Brown, we had a project in the Gila River that was in the omnibus flood control bill last year. Are you familiar with that project? Would that project of the Corps of Engineers have any relation to your project here?

Mr. BROWN. The project of the Corps of Engineers does not provide for any benefits in this benefited area, as I understand it. This project the Corps of Engineers submitted was reviewed by the Corps of Engineers under interagency procedures, and their letter indicates that there is no conflict in either the plan or the benefited area.

Mr. SMITH. Mr. Brennan, I would like you to ask Mr. Brown some questions about that particular project.

Mr. BRENNAN. If the chairman will permit, I will go to the map. This is a project, Mr. Chairman, in which there is a very interesting relationship between the Corps of Engineers studies, as Mr. Brown indicated, and the plan under the Department of Agriculture. There is one factor that I think might be interesting to the committee as a whole in any future work on the Gila River.

If I may go beyond this plan, for just a bit, and explain it very briefly. The Gila River runs from this direction here, east, on to the west there, and joins the Salt River below Phoenix, generally in this area here. This valley, as Mr. Brown explained, actually is composed of 32,000 acres of very highly cultivated land.

Some 30 years ago, in 1927, one of the first projects of the Federal Government in this area was the construction of a dam called Coolidge Dam forming San Carlos Reservoir, which is just down below Safford Valley. That dam was designed to hold water for irrigation purely and not flood control, to supply the San Carlos Irrigation District, which is composed of about 100,000 acres, half of which is under the Indian Service for Indians and half is under the white settlers. In the construction of that dam there was a difference of opinion as to the use of water in the valley that was resolved in the Gila River decree, which was finally agreed to by everybody and which has a very important effect on the use of water in this area and the water in Coolidge Dam.

Water which comes through Safford cannot be diverted unless there is a certain amount of storage in Coolidge Dam. What I am leading up to is this: The Corps of Engineers and the Department of Agriculture have long ago, as long as 20 years ago, studied this valley—not this particular project Mr. Brown is talking about, but the water situation there. However, they were never able to develop a plan for flood control or for multiple use which would require a large main-stem dam further east. The objections of the San Carlos Irrigation District to any storage above Safford Valley were part of the problem.

That position was maintained solidly by the San Carlos Irrigation District over many years, and I know Mr. Brown is familiar with this situation. So all of this lengthy explanation is leading up to the question of the attitude and opinion of the San Carlos Irrigation District or the interests downstream from San Carlos Reservoir to the

construction of any structures, even retarding structures, in this area.

The question is, Mr. Brown, have you any comments on the views of the San Carlos Irrigation District?

Mr. BROWN. Yes, sir. That has been one of the principal reasons that the watershed program and flood-control program in the State of Arizona is relatively behind that of a good many other States. That has been the principal reason, namely, the earlier objections of the various irrigation districts or organizations concerned with downstream water supply. It was only through long negotiations and development of understanding with the organizations here that the plan has been approved by the Governor of the State of Arizona.

This has been fully coordinated and is fully approved by the San Carlos Irrigation District on the basis that there will be no permanent impoundment of water. These would be strictly dry dams. They have become convinced that there will be no net loss to them of the supply available.

Mr. BRENNAN. In other words, Mr. Brown, they are still maintaining the position that no structures should be built above Safford which will store any water other than floodwaters?

Mr. BROWN. That is right.

Mr. BRENNAN. So, therefore, as far as flood control on the main Gila River is concerned, which runs through this entire area, those who promote flood control are still in the same position of not being able to proceed with a project for a storage dam upstream?

Mr. BROWN. Yes; that is correct. And I would like to point out in reference to the question about the comparatively high cost that one of the factors that had to be taken into account was that of providing relatively high release rates from these structures. For example, the largest of these structures, which is No. 6, the big one over here—that structure has a release rate in a 100-year frequency flood of 800 cubic feet per second, and it will release the entire input or inflow of water from such a flood in 118 hours. The consequence of releasing 800 cubic feet per second of flow is that you have to have a pretty well protected channel to take it.

Mr. MCFALL. Yes; but why? Why would you have to have such a large release?

Mr. BROWN. The reason for it is any longer period of detention in the structure here would allow evaporation or other losses which the downstream irrigation interests would consider detrimental to the water rights which they hold on this water.

Mr. BRENNAN. That is the point, Mr. McFall, that I was bringing up. Here we have a situation where the development of a project is closely tied in to the water rights and to the understandable desire of the people to have the water and to retain those rights and to prevent any possible loss.

Even structures of this nature cannot be proposed or recommended unless they have devices to make sure that only the minimum amount of water be lost to evaporation which might otherwise find its way down to the San Carlos Reservoir and be used in the irrigation project downstream. Even a project which would have as little loss of water as this apparently requires some negotiation to get through.

There has been proposed the Camelsback Reservoir and its alternatives upstream from Safford, which would be large flood control dams.

These have been opposed on the basis that Safford might get more water than it is entitled to under the Gila decree. Gila River is actually up here. Am I right, Mr. Brown? And Safford is south of the Gila.

Mr. BROWN. Yes.

Mr. BRENNAN. It is a wide, flat, dry wash. But this time into the omnibus bill. In order to comply with the desires of the local interests it has been necessary for even this type of improvement to be guarded by devices.

Mr. MCFALL. Is it necessary under the Gila decree that these desires be followed, or is it just because of the fact it is necessary to have negotiations to get everybody in agreement?

Mr. BRENNAN. Well, the Gila decree actually provides that the amount of water diverted at Safford or in the intake of irrigation canals here is dependent on the amount of water in storage in the San Carlos Reservoir. If there is so much water in the San Carlos Reservoir then a certain amount can be diverted up here. If there is more water in the San Carlos Reservoir, more can be diverted, but the amount of water downstream in storage determines the amount that can be diverted upstream. That is the law. It is the legal decree.

Mr. MCFALL. Let me ask you the definition of diversion here. Is this a diversion where you merely block it for 118 hours in this case and they have agreed, I presume, that it is not a diversion? But suppose you held it for an ordinary lengtht of time and we did not have to build this large outlet and you did not have to build this expensive sluiceway or runway to take it away that fast, would that be a diversion? How long would you have to hold it under ordinary conditions in order to let it run down through an ordinary flood control dam and an ordinary raceway?

Mr. BROWN. Well, I would say in the area of Texas that you spoke of, where there were no water rights problems involved, that the detention period for a structure of that size and with that amount of inflow might be over 5 to 10 days before it would completely empty. However, this would not be construed as I understand it as a diversion. But if the outflow water that would go down this proposed channel to the Gila River were picked up in any part into this high-line canal, which could be done, that would be a diversion and that would be contrary I believe to the compact.

You see, there is no beneficial use that can be made of any of this retarded floodwater. It has to be all released as rapidly as practicable, and it is a matter of negotiation as to how rapid that should be.

Mr. MCFALL. Then my next question would be, if that is not a diversion, then would the building of an ordinary structure, shall we say, that would be less expensive, be considered a diversion? Also, what is the difference in cost between the structure you have to build here and, let us say, an ordinary Texas type of flood control structure?

Mr. BROWN. I am afraid I could not answer that quantitatively. I do not believe that the cost in the structure itself would be of any significant difference. The added cost would be the added channel cost down here.

Mr. MCFALL. The channel itself?

Mr. BROWN. Yes.

Mr. McFall. You pointed out to us the reason why this project costs more than it might otherwise is because of the high cost of the channel. Is that right?

Mr. Brown. That is correct.

Mr. McFall. $1,400,000, or something like that.

Mr. Brown. It may be that the structure itself will cost somewhat more because of site conditions; the requirements for compacted earthfill here. We have a rather loose alluvial material and there may be a scarcity of water, and so forth, and the structure itself may cost somewhat more than a similar capacity structure would cost in Texas, but that would be a site condition which would exist under any circumstances. The nature of the releases here would mean only that you put in a larger pipe instead of a smaller one, which might make a few hundred dollars difference in the cost, but the basic difference would be in the channel.

Mr. McFall. And how much difference in the channel? Do you know?

Mr. Brown. Well, ordinarily, in a project such as those in Texas, there is no channel improvement required. The water is simply released into the normal stream channels and that goes on down. But here you have water in the first place that crosses an area of intensively used land. So you have to build a channel and then, because of the large release, you have to protect that channel by riprapping or lining, or otherwise, so that you will not get erosion.

Mr. Smith. These extra costs in the way of channels, though, according to the plan here are borne by the Federal Government, are they not?

Mr. Brown. The cost of the channel is a part of the construction cost of the project and, therefore, is borne by the Government. Yes.

Mr. McFall. Do you have any way of knowing how much those extra costs are that result from the fact that the extra large release is required because of the demands of downstream local interests?

Mr. Brown. We have not made any alternative studies, I would say. The reason for that is that the prime conditions had to be negotiated in advance and this was the kind of plan that was developed to meet those conditions.

Mr. McFall. Would there be any loss of water if this were held 10 days?

Mr. Brown. Well, of course, there is some loss of water from any amount of detention in that high evaporation area out there. I think they get 6 feet or better of evaporation off of free water surfaces in that area.

Mr. McFall. Six feet per what?

Mr. Brown. Per annum. So every day if you have a spread of 50 or 100 acres of water surface there, every day you get may be an inch or so of evaporation off of it.

Mr. McFall. Let us say you have 100 acres and you have an inch of loss, how much water is that, Mr. Brennan, right quick?

Mr. Brennan. It is 100 acre-inches. One acre-foot is approximately 43,500 cubic feet. A hundred would be 4,350,000 cubic feet, so 1 inch would be one-twelfth of that or roughly 360,000 cubic feet.

Mr. BROWN. The quantity in terms of capacity of San Carlos Reservoir would seem to be insignificant, but the irrigation interests down there do not think of it in those terms. They think of an acre-foot of loss meaning a loss to somebody who is irrigating his land and it means so many acres not in cultivation.

Mr. MCFALL. From my point of view, why should the Federal Government pay an extra million dollars, let us say, or an extra $1,400,000 for this flood control project because the local interests want to conserve 10,000 acre-feet a year, or 5, or 2, or whatever it is here.

Mr. BRENNAN. May I make one more point? In addition to the evaporation the loss is also occasioned by underground seepage. Safford is partly supplied by underground pumping. They have a very extensive system of wells. So, in addition to the loss through evaporation, there is a loss through the water sinking into the underground basin, and that will definitely augment the Safford water supply. As a result the water which goes underground becomes available to the Safford Valley and is not taken into account in the computation of the amount of water which they can divert. So, in addition to what water they can divert, depending on the storage in San Carlos Reservoir, they get the water which sinks under these reservoirs.

Mr. MCFALL. In other words, if they let it down in 50 days instead of 5 days, as an arbitrary figure, a lot of it would percolate into the local underground water table and not very much of it will get to San Carlos, but most of it would stay in Safford.

Mr. BRENNAN. Well, some of it would percolate, and whatever did percolate would be a gain to Safford Valley and come outside of the formula used in the computation and would therefore be a loss to the San Carlos Irrigation District.

Mr. BROWN. I would not want to mislead you on the cost of these channels. It would be necessary to construct a channel and to line it in any event, whatever the release rate because it goes through this highly erosive and intensively used area here. It would only be the difference in the size of the channel which would represent some difference in the cost, but it would not be that $1,200,000 difference. It would probably be some small fraction of it in terms of a larger sized channel to carry the heavier release rate.

Mr. MCFALL. That is all, Mr. Chairman.

Mr. CRAMER. Mr. Chairman.

Mr. SMITH. Mr. Cramer.

Mr. CRAMER. Your local participation is 10 percent; is that right?

Mr. BROWN. Yes.

Mr. CRAMER. Could you give me an idea as to the basis for the determination of the Federal and local participation in this type of project?

Mr. BROWN. That is specified in the law itself. For works of improvement allocated to flood prevention, structural measures allocated to flood prevention, the Federal Government is required to pay the entire construction cost and local organizations are required to provide the land, easements, and rights-of-way, and let and administer the contracts, and provide the operation and maintenance.

That is formally spelled out in the act itself.

Mr. CRAMER. That is in the form of local contribution, the local participation?

Mr. BROWN. That is right.

Mr. CRAMER. There is never a question of land enhancement or anything of that sort in this type of project?

Mr. BROWN. Under our act land enhancement cannot be taken into account as a factor in determining costs.

Mr. CRAMER. That was my understanding. Is there any present usable agricultural land that will have to be taken over for the active project?

Mr. BROWN. No, sir. The structural measures will be entirely above the present agricultural areas. The only exception, I might say, would possibly be some right-of-way required for this channel that goes through the agricultural area, but that would be minor in terms of acreage.

Mr. CRAMER. How frequent a flood situation exists in this area?

Mr. BROWN. Floods have occurred quite frequently in that area. I mentioned some of the dates here. Since 1880 there have been major floods, major damaging floods, in 13 years, and a good many minor ones.

Mr. CRAMER. How do you arrive at the flood prevention benefit of $285,478?

Mr. BROWN. That has been based on the actual recorded damages from the floods occurring from the last four major floods on which actual damage estimates were made either by the Soil Conservation Service or by the Corps of Engineers.

Mr. CRAMER. And the last one occurred when?

Mr. BROWN. The last damaging flood occurred on July 27, 1957. Other major floods in which actual recorded damages have been obtained were in September 1944, September 1939, and August 1925.

Mr. CRAMER. You project over that frequency in determining what the prospective flood damage might be. Is that right?

Mr. BROWN. That is right. There has been a frequency series set up and each one of those figures has been related to that frequency series, and from that the average annual damages are calculated.

Mr. CRAMER. Just one other question. What are the components, or some of them, in the measure of average annual cost of $195,341?

Mr. BROWN. I can give that to you in terms of the cost of various elements of the project. Is that what you have in mind?

Mr. CRAMER. The average annual cost is $195,341. In other words, what is your annual maintenance cost?

Mr. BROWN. The average annual maintenance cost on the project is approximately $25,000. That is the average annual maintenance.

Mr. CRAMER. I am not interested in the cost of the project itself projected forward, but the annual maintenance cost is about $25,000 a year?

Mr. BROWN. Yes, sir. About $25,000 yearly in terms of the breakdown of the benefits from the project, the total monetary benefits are $285,478 annually. That breaks down approximately this way—and I will give it to you in round figures: The benefits to prevention of damage to crops and pasture, $116,000.

Other agricultural damages to fences, and that sort of thing, $22,000.

Damages to residential properties, $23,000.

Damages to commercial properties. $33,000.

Damages to public utilities, roads, and so forth, $28,000.

Other damages, $25,000, and indirect damages, $50,000.

There is no land enhancement in this project and there will be no additional land brought into cultivation. The justification is based wholly on the prevention of damages as computed from past floods of record.

Mr. CRAMER. That is all I have.

Mr. SMITH. Thank you, Mr. Brown. I note Congressman Fisher is here. Mr. Fisher, we have already heard Mr. Brown in regard to the supplementary plan on the Sulphur Creek Watershed, but if you would like to make a statement here we will be glad to hear you.

Mr. FISHER. Mr. Chairman, I do not care to take up the time of the committee, I can assure you. If the project has been explained in detail I am satisfied. My interest, of course, is that of the local people who are vitally interested in the project. They have recurring floods there of major proportions which converge into the main stem at an average of every 10 years, and it has been going on since the town was washed away where the streams do converge, in 1873. It has recurred at an average of about every 10 years.

However, that is not the primary purpose of the project, but it is incidental. There is a lot of interest in this. Local participation in the cost is about 18 percent, I believe. There is a tremendous amount of interest in this project. That is all I have to say.

Mr. SMITH. Thank you. Mr. Williams, we will now hear from the South Dakota project.

BRULE CREEK WATERSHED, LINCOLN AND UNION COUNTIES, S. DAK.

Mr. WILLIAMS. All right. Mr. Wetzel will present that project for us.

Mr. WETZEL. Mr. Chairman and members of the committee, the third project before us for consideration today is that for the Brule Creek Watershed in South Dakota. It is located in Lincoln and Union Counties, S. Dak., which is in the extreme southeastern corner of the State. The Brule Creek Watershed is roughly about 223 square miles and 143,000 acres. It is a direct tributary to the Big Sioux River.

The watershed is practically entirely an agricultural watershed. There are a few small hamlets located in the watershed. However, there are no flood damages suffered in the small towns. All of the flood damages occur within the flood plain area here, which is in agricultural use.

There are roughly 180 farms in the watershed, of which about 30 percent have holdings in the flood plain area. The area which is damaged is about 7,600 acres in size. In other words, this orange-tinted area represents the flood plain, and that is about 7,600 acres.

The damages consist primarily of practically annual floods with floods up to 4 and 5 feet of depth occurring over the flood plain area almost every year. The major floods have occurred at a frequency of about 5 years, the last one occurring in 1954.

Due to the deterioration of the watershed, or of the channels as a result of these repeated floods, the crops or cultivated land has been gradually moving out of the flood plain which represents the finest

land in the watershed and has been going back over or, rather, under the steeper hill lands.

The plan as proposed by the Lincoln and Union County Soil Conservatoin Districts represents a project to be installed over an 8-year period at a total installation cost of $3,206,000, of which 54½ percent, or $1,700,000 will be paid by the Federal Government and the local people will pay 45½ percent of the total cost, or about $1½ million. The local contribution will be in the form of lands, easements, and rights-of-way, the cost of installing necessary land treatment measures on the reservoir lands, and the cost of letting the contracts for the installation.

The installations will provide a control for the 25-year frequency flood and will include 17 flood retardation structures and four grade control structures located in the major gullies in the watershed and about 80 miles of channel improvement throughout the watershed.

The average annual damages without the project are about $112,000. Average annual damages with the project installed will be about $14,000, or the project will bring about an 87 percent reduction in the average annual damages.

The average annual benefits will be about $92,000. The average annual costs will be about $76,000. The benefit-cost ratio of the project will be 1.2 to 1.

The principal crops in the watershed are corn, oats, soybean, alfalfa, legume grass mixtures, and there are a few small dairy herds located in the watershed. There is quite an extensive hog-farming operation within the watershed.

The size of the flood water retarding structures will range over quite a large latitude. The smallest will be 199 acre-feet total capacity. The largest, No. 9, at the top of the watershed, will have a total capacity of 4,009 acre-feet capacity.

The project will be carried out by a watershed conservancy district which is now in the process of organization. The hearings have already been held. They are favorable. It now will require merely a certification of the organization of the watershed conservancy district. That district, under a recently enacted piece of legislation by the South Dakota Legislature, provides the watershed conservancy district with a general, taxing authority which will be adequate to provide for the operation and maintenance of the structural measures involved. It provides for a specific taxing authority to cover the local cost of structural measures and it also provides that the watershed conservancy district shall have the right of eminent domain for the necessary lands, easements and rights-of-way.

It is interesting that about 65 percent of the watershed area is already under conservation farm plans. In other words, the landowners in the past either have developed conservation farm plans with the technical assistance of the Soil Conservation Service for 65 percent of the total area in the watershed.

Mr. SMITH. Any questions, Mr. McFall?

Mr. MCFALL. No questions.

Mr. SMITH. Mr. Cramer.

Mr. CRAMER. What is the policy with regard to authorizing or giving a favorable report on a project where the legislature does not establish the watershed district?

Mr. WETZEL. If there are adequate efforts, or, first of all, if there is legal provision for the organization of the watershed district and the local people have indicated a willingness to go ahead with the formation of a watershed district and have taken the initial steps, the plans have been submitted to the committees for their approval—there are some cases, and South Dakota happens to be one of them—where the State law requires that there be some sort of a plan or a program in being in order to support the formation of the watershed conservancy district. So in some cases it is necessary to develop a plan prior to the actual formation of the watershed conservancy district.

Mr. CRAMER. Is that the case in South Dakota?

Mr. WETZEL. That is right, sir.

Mr. CRAMER. Does the formation of the district require further legislative action or does the Watershed District Act of 1957 provide adequate legislative authority?

Mr. WETZEL. The Watershed Conservancy Act of 1957 provided adequate legislative authority. However, it provided for a rather cumbersome organizational procedure. Since the preparation of this plan, that is, in February of this year, the State Legislature of South Dakota amended the Watershed Conservancy District Act very drastically to simplify the procedures necessary to organize a watershed conservancy district, and this district is being organized under the amended act as such.

Mr. CRAMER. What is the situation in Florida with regard to legislation? Are you familiar with that?

Mr. WETZEL. I do know that soil conservancy districts have the authority to submit applications for assistance. They have the authority to carry out projects. They do not have taxing authority. Perhaps Mr. Brown is more familiar with the actual situation in Florida regarding the legal authority of organizations.

Mr. CRAMER. Well, if you would submit a memorandum to me I will appreciate that.

Mr. WETZEL. We will be glad to do that, sir.

Mr. SMITH. Mr. McFall.

Mr. MCFALL. I would like to ask you a question about the cost sharing. It is covered in the third paragraph of your general summary statement. You say there that the work plan proposes an 8-year project at a cost of $3,205,709 and a certain percentage of it, $1,747,955 comes from Public Law 566 funds and the balance of $1,457,754 comes from other funds and resources. What other funds and resources? Can you enumerate?

Mr. WETZEL. Yes. The way our plans are set up the breakdown is on the basis of funds appropriated under the authority of Public Law 566, and other funds. Now "other funds" means any funds which are not appropriated under the authority of Public Law 566. That will be made up of funds which are raised through taxation by the local organization, contributions from the State, and contributions from a county; and that may also include some payments from cost-sharing programs in the installation of the land treatment measures. In other words, the cost sharing provided by the agricultural conservation program for certain land treatment measures may be provided in the other funds.

Mr. McFALL. So "other funds" then has a mixture of local sharing of cost, plus some small portion of Federal money which might come from the agricultural conservation program funds you referred to?

Mr. WETZEL. That is right. In many cases in States like South Dakota there is some money provided by the State government to assist in the purchasing of lands, easements, and rights-of-way. It is a mixture of local, State, and possibly some Federal funds available for the cost sharing on the land treatment.

Mr. McFALL. Do you have any way of breaking down in this particular instance how much would be available from the Federal Government in this particular program and in this specific instance how much would be local altogether?

Mr. WETZEL. It is extremely difficult, sir, in view of the fact that the agricultural conservation program cost sharing varies by counties and by years. We have found it is almost impossible to try to predict what the agricultural conservation program cost sharing on certain measures may be 8 years from the time that the plan was prepared.

Now the maximum amount, as purely an estimate, would be about half of the cost of installing the land treatment measures. The cost of installing the land treatment measures is just about or slightly more than $1 million to the local people. So the maximum amount of agricultural conservation program cost sharing if that program were continued at its present level over the next 8 years could be about $500,000.

Mr. McFALL. You would have then approximately $900,000 to be borne fully by local interests and possibly $500,000 by some other funds?

Mr. WETZEL. Some other phase of the program. That is right, sir.

Mr. McFALL. Thank you.

Mr. SMITH. Thank you very much, Mr. Wetzel, and thank you, Mr. Williams. We also appreciate getting these maps. I am sorry we did not have any better attendance in the committee but unfortunately the House finished its business yesterday and too many of them are not in Washington today.

Mr. WILLIAMS. We are happy to have been with you, sir. If we can furnish any other information we will be glad to do so.

Mr. SMITH. We will make the maps up here available to the other members.

(Whereupon, at 11:30 a.m., the subcommittee adjourned and went into executive session.)

SMALL WATERSHED PROGRAM

WEDNESDAY, JUNE 17, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:15 a.m., in room 1302, New House Office Building, Hon. Frank E. Smith (chairman of the subcommittee) presiding.

Mr. SMITH. The subcommittee will be in order.

We will hear reports on three watershed projects this morning.

Mr. Carl Brown, of the Soil Conservation Service, will discuss the projects.

STATEMENT OF CARL B. BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR, SOIL CONSERVATION SERVICE—Resumed

SHOAL CREEK WATERSHED, MONTGOMERY COUNTY, ILL.

Mr. BROWN. Mr. Chairman, we have to present to the committee this morning two projects in Illinois and one project in the State of Georgia. I would like to discuss first the Shoal Creek watershed project, which is located in Montgomery County, Ill.

This project as well as the second one I think will be of interest to the committee because these are the first projects in which there has been a significant amount of municipal water storage provided under the terms of the amendments to the Watershed Protection and Flood Prevention Act of 1956.

Both of these projects are multiple-purpose projects. The first project has two multiple-purpose reservoirs providing flood prevention storage and municipal water supply, respectively, for the towns of Litchfield and Hillsboro, Ill.

This project, Shoal Creek, is sponsored by the Montgomery County Soil Conservation District, and the two municipalities I have mentioned; namely, Litchfield and Hillsboro.

The project covers an area of approximately 300 square miles, or 192,000 acres. This is an area of intensively cultivated land in the Corn Belt section of Illinois.

About two-thirds of the land involved here is in crops, mainly in corn, and about one-third is in pasture, with some minor amount of woodland.

The area has a farm population of 6,212. The two towns have, respectively, 5,561 population in Hillsboro and 7,208 population in Litchfield.

This area has been subject to repeated flooding. Floods occur from storms of a 1-year frequency, causing extensive overflow in the areas shown in yellow, and resulting in serious crop losses and damage to bridges, highways, and other improvements.

The average annual flood damages in this watershed have computed in round figures to be $134,000 annually, occurring on about 7,500 acres of land subject to damage. About 6,000 of that 7,500 acres is cultivated land and is highly productive. The crop and pasture damage constitutes about 80 percent of the total damage in the watershed.

The bridge and road damage, and damages to four railroad bridges and other improvements in the flood plain, constitute the other 20 percent.

The plan as provided here will give virtually complete protection for floods up to and including the 5-year frequency flood. The plan will reduce the average annual damage by 78 percent.

The flood reduction benefits are calculated to be $197,000 in round figures, and the municipal water supply benefits to the two municipalities are calculated to be $72,000 in round figures.

The benefit-cost ratio for the project as a whole, including both types of benefits, is 1.3 to 1.

The plan of improvement in the watershed contemplates an extensive amount of application of soil conservation practices on land including rotation and strip cropping, and other practices of that kind.

The estimated total cost of the land treatment phase of the program is $1,132,000, of which 13½ percent will be required for accelerated technical assistance to be provided by the Soil Conservation Service.

The structural plan of improvement includes six floodwater retarding structures shown around the headwater area, where the two multiple-purpose structures for flood prevention and municipal water supply, together with some 24 miles of channel improvement that will be made to further increase the flood protection down through the damage area shown in yellow.

The control system will provide for an average detention of 3½ inches of runoff in each of those structures. The structures will control about 66 percent of the total watershed area. The structural system as a whole will provide an aggregate capacity of 26,833 acre-feet for flood prevention capacity, that is, dry capacity, and it will provide 30,172 acre-feet for municipal water supply, and 2,436 acre-feet for settlement storage over a period of 50 years.

The total cost of the structures shown on this plan will be $3,530,748. The Federal part of that cost to be provided out of Public Law 566 funds will be $1,358,735. The distribution of costs will be: For flood prevention the allocation is $1,829,183, of which 74.3 percent will be provided by the Federal Government from Public Law 566 appropriations and the remaining 25.7 percent will be a local cost for land, easements, and rights-of-way.

The entire cost of the water supply allocation, which amounts to $1,701,565, will be borne by the two municipalities. So that if you combine the land treatment costs and the costs of the structures, the cost distribution will be 31.4 percent Federal and 68.6 percent local cost.

I believe that is a brief summary, Mr. Chairman. I will be glad to answer any further questions about it.

Mr. SMITH. Mr. Hull.
Mr. HULL. No questions.
Mr. SMITH. Any questions by the members on my left?
(No response.)
Mr. SMITH. Thank you, Mr. Brown. Let us take the next one.

BIG BLUE WATERSHED, PIKE COUNTY, ILL.

Mr. BROWN. The next project, Mr. Chairman, is very similar to the first one, except that it is smaller in scale. This is the Big Blue watershed in Pike County, Ill., which is jointly sponsored by the Pike County Soil Conservation District and the city of Pittsfield, Ill., which is located outside of the watershed area, but which is participating in and sponsoring improvements because of municipal water supply to be provided in this multiple-purpose structure.

This watershed area comprises 41.7 square miles, or 26.69 acres. Like the first project, it is an intensively cultivated area, about 60 percent being in row crops, mainly corn, and the remainder being in pasture and some woodland.

Mr. HULL. Mr. Brown, is that land in that area the second bottom land or the hill land?

Mr. BROWN. This land that is shown in yellow is the land that is subject to overflow, and it is the flood plain land. I suppose you would call that first bottom land.

Mr. HULL. First or second? Excuse me for interrupting.

Mr. BROWN. I am not sure about the physical conditions and whether it is what you call the second bottom or not.

Mr. SCHWENGEL. Is that the area east of Quincy, Ill., or a little further north?

Mr. BROWN. Apparently our map here does not have a sketch on it, but this plan shows it is located on the extreme west-central part of the State here, about midway from north to south, and very close to the western boundary of the State.

The Blue Creek is a tributary of the Illinois River, which runs into the Mississippi River a short distance below that point.

The area that is subject to flooding within the watershed comprises 830 acres of highly productive flood plain land. The average annual damage on that land amounts to $9,213, and the average agricultural damage constitutes 88 percent of the total.

This watershed likewise will combine a program of land treatment measures to retard runoff and reduce erosion at an estimated total cost of $213,000 in round figures, of which about $20,000 will be provided for accelerated technical assistance. The structural measures in the watershed include only one multiple-purpose structure, and one single-purpose flood detention structure. The two structures combined will provide 2,846 acre-feet for floodwater detention, and 4,391 acre-feet for municipal water supply, together with a small allowance for sediment accumulation.

The total installation cost of those two structures is estimated at $393,730, of which the Federal share will be $115,118, or 29 percent; and the local share will be $278,612, or 71 percent of the cost.

Like the other plan, this will provide almost complete flood protection against floods up to a 5-year magnitude, and it will reduce the average annual flood damages by 63 percent. It will produce total

flood prevention benefits of $8,042, and municipal water supply benefits of $10,099, annually.

The benefit-cost ratio for the project is 1.24 to 1.

In this project, and I should have said in the other project as well, the municipalities involved have guaranteed the acquisition of all lands, easements, and rights-of-way for all of the structures. Not just the multiple-purpose structures, but for all of the structures. They have guaranteed to assume the maintenance costs on all of the structures also.

I might make one other point with regard to this plan which is incident to the provisions of the act. Insofar as the Federal cost is concerned, this project could have been administratively approved because the Federal cost of the structural measures, as I pointed out, is only $115,000, and the limitation on the administrative approval is $250,000. But the amended act provides that any plan having a structure of more than 2,500 acre-feet of total capacity must come to the committees of Congress for approval. So this plan is here because of this larger multiple-purpose structure.

Mr. SMITH. Mr. Brown, in relation to those reservoirs for municipal water use, have plans been made for taking care of the water supply of these towns if they grow appreciably in the future?

Mr. BROWN. Yes, sir. That has been taken into consideration. As a matter of fact, in these multiple-purpose structures, these multiple-purpose structures are based on plans developed by private consulting engineering firms employed by the three municipalities who have made estimates of the future water needs of the city, and we have simply incorporated the plan, that has been done by these engineering firms, into a multiple-purpose structure, so that this does provide the usual accepted standard of municipal water supply for future growth.

Mr. BALDWIN. Mr. Chairman.

Mr. SMITH. Mr. Baldwin.

Mr. BALDWIN. Mr. Brown, 2 or 3 months ago, when we had a hearing on some earlier projects, we had a little discussion as to what would occur as far as budget funds available for 1960 were concerned. The House, in the form in which it passed the Agriculture Department's budget, put in a sum of money for these projects, although the Bureau of the Budget recommended no new starts.

I am very pleased that the House put in a sum of money for this purpose. Are you able to estimate as of now whether the sum of money put in by the House will probably be sufficient as near as you can foresee if these projects are coming along ready for construction? I would like to know whether the sum approved by the House will be sufficient, so that these projects can proceed without delay in their construction.

Mr. BROWN. Yes, sir, it would.

Mr. SMITH. Off the record.

(Discussion off the record.)

Mr. BALDWIN. Then as I understand it, if the House figure or thereabouts should prevail in conference, these would go forward without interruption. If the Senate figure is passed, what would it mean to these projects? Would they be delayed a year?

Mr. BROWN. I don't know that I can give you a positive answer to that. I would say this, however: With respect to the two projects that

I have discussed, considering that they will not be authorized until this month or next by both committees, it is unlikely that a new start in the terms that it has been defined, which means the start of construction, would occur in the next fiscal year.

Mr. BALDWIN. Why? Is there that much additional time required before they will be ready for construction?

Mr. BROWN. You see, the municipalities have to acquire the lands, easements, and rights-of-way. That may involve some court proceedings. It is a matter of a good many months to obtain the land in the first place.

Mr. BALDWIN. I see.

Mr. BROWN. And then there are several months involved in preparing the final designs and specifications for the structures, which is the advance planning in the sense that it is used in the Corps of Engineers.

Mr. BALDWIN. You do have funds for such advance planning?

Mr. BROWN. That is right. In other words, that is not a new start and there is no limitation on it. Under the amount provided in either the House or the Senate versions of the Appropriations Act, there would be sufficient funds to continue the advance planning on all projects authorized.

Mr. BALDWIN. I see. Thank you, Mr. Brown.

Mr. SMITH. Are there any other questions on this project?

(No response.)

Mr. SMITH. Without objection, we will include in the record at this point a letter from Mrs. Edna Simpson, the Representative from the district concerned, in regard to the project.

(The letter referred to is as follows:)

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., June 15, 1959.

Hon. FRANK E. SMITH,
Chairman, Subcommittee on Watershed Development, House Public Works Committee, House Office Building, Washington, D.C.

DEAR MR. SMITH: It is my understanding that your subcommittee will meet on June 17 to hear representatives from the Soil Conservation Service discuss several watershed projects which have been recently submitted to the committee and to take executive action thereon.

One of the projects in question is the Big Blue Creek watershed project, located in Pike County, Ill., and in the 20th Illinois District which I represent. Naturally, I am vitally interested in its favorable disposition and wish to take this opportunity to respectfully request your careful consideration of the matter. I would also like to ask that this letter be made a part of the hearings relating thereto.

Thanking you and with kind regards, I remain,

Sincerely yours,

Mrs. SID SIMPSON.
Edna Simpson

TOBESOFKEE CREEK WATERSHED, BIBB, LAMAR, AND MONROE COUNTIES, GA.

Mr. SMITH. We will now go to the project in Georgia.

Mr. BROWN. I would like to ask Mr. Wetzel to explain this project in Georgia.

STATEMENT OF JOHN H. WETZEL, DIRECTOR, WATERSHED PLANNING DIVISION, SOIL CONSERVATION SERVICE—Resumed

Mr. WETZEL. Mr. Chairman and members of the committee, the third watershed project to be presented to you this morning is that for the Tobesofkee Creek watershed in Georgia. The Tobesofkee Creek lies partially in Bibb, Lamar, and Monroe Counties. It is a tributary of the Ocmulgee River, which in turn is a tributary to Altamaha River.

This watershed comprises an area of about 137,000 acres, of which the primary use is for agricultural uses, including the production of timber. The watershed is in a badly deteriorated condition as of the present time due to the fact that there has been a long history of floods and the resulting sediment damage and floodwater damage has seriously decreased the area which is available for continued agricultural production.

Less than 40 years ago, about 80 percent of this watershed was in agricultural production. As of the present time, due to the deterioration of the watershed, only about 16 percent, or about 15,000 acres, is in agricultural production.

The plan is sponsored by the Ocmulgee Soil Conservation District and the Towaliga Soil Conservation District. The proposal as submitted by the local organizations includes a rather comprehensive group of land-treatment measures throughout the total watershed area, plus an intensive fire-control and prevention program to be carried out throughout the watershed in cooperation with the Georgia Department of Forestry.

The primary area now in agricultural production is the Little Tobesofkee Creek, with a small portion of the main flood plan on Big Tobesofkee Creek. During investigations it was determined that the portion of the watershed known as the Big Tobesofkee Creek—the upper headwaters of that area—are so badly deteriorated and have reverted to brush and timber that it was not possible to justify any structural measures for flood prevention in that particular area. The program proposed is a program of intensive fire prevention and control. The structural measures proposed are two floodwater-retarding structures, shown at these two points, one affording about 4,300 acre-foot capacity and the other about 2,100 acre-foot capacity, plus extensive channel improvement and cleaning, which involves about 73,000 feet of channel improvement.

The average annual damages in the watershed, remembering that the damages occur primarily in this small tributary here of Little Tobesofkee Creek, which is the only area in agricultural production at the present time, are approximately $65,000 each year. The plan as proposed will reduce those damages to about $18,000 per year, or a 72-percent reduction in the average annual damages.

The benefit-cost ratio for the plan is approximately 2 to 1.

The total project costs will be about $1,300,000, of which about $460,000 will come from Public Law 566 funds and about $861,000 from funds other than Public Law 566 funds. This ratio of cost sharing is about 35 to 65 percent local.

That covers the general features of the project.

Mr. SMITH. Mr. Wetzel, I noticed that the benefit-cost ratio is 2 to 1. That is higher than the average for these projects; is it not?

Mr. WETZEL. I would say so, sir. Yes, sir.

Mr. SMITH. Are there any questions?

Mrs. Blitch?

Mrs. BLITCH. Yes; I am very interested in this, Mr. Smith, because it is in the State of Georgia. The initial cost is how much? For this project itself, how much money are you putting into it?

Mr. WETZEL. The Federal cost will be $460,929.

Mrs. BLITCH. That is the overall cost?

Mr. WETZEL. Yes.

Mrs. BLITCH. But initially, how much?

Mr. WETZEL. You mean in the first year, Mrs. Blitch?

Mrs. BLITCH. Right now.

Mr. WETZEL. It is a 5-year project.

Mrs. BLITCH. I know, but they do not give you anything but the rights-of-way and so forth, to begin with. Is that right?

Mr. WETZEL. That's right. Local people will provide lands, easements, and rights-of-way.

Mrs. BLITCH. And that will amount to how much?

Mr. WETZEL. That amounts to about $23,000.

Mrs. BLITCH. And the Federal participation is how much?

Mr. WETZEL. The Federal participation to construct the structures on the land to be provided by the local people is $329,924.

Mrs. BLITCH. That is what it starts out with?

Mr. WETZEL. That is for the total project.

Mrs. BLITCH. $329,000 is all you put in—period.

Mr. WETZEL. That is right. For the structural measures. In addition to that, the Federal Government will provide $131,000 for technical assistance to install these land treatment measures.

Mrs. BLITCH. What is the money that local people put into it besides the lands, easements, and rights-of-way?

Mr. WETZEL. The local people will put $837,000 into installing the land treatment measures on their own land, plus the State contribution.

Mrs. BLITCH. The individuals who own the land—that will be prorated amongst them?

Mr. WETZEL. That is right.

Mrs. BLITCH. What would you say the average individual would have to put up? Can you tell me that?

Mr. WETZEL. Yes. There are 791 farms in the area.

Mrs. BLITCH. 791 farms?

Mr. WETZEL. So the average individual would have to put up someplace in the neighborhood of around $1,000 over the 5-year period.

Mrs. BLITCH. And they have all signed and agreed to it?

Mr. WETZEL. No. They have not at this stage all signed an agreement to invest that amount of money.

Mrs. BLITCH. You are going ahead with this amount of something like $370,000 to begin with, with their easements and their rights-of-way?

Mr. WETZEL. That is right.

Mrs. BLITCH. In the hope that they are going to cooperate with you later?

Mr. WETZEL. I might point out that a requirement of the law or the act is that 50 percent of the land above each of the structures must

be under agreement before Federal funds can be provided for the construction of the structure.

Mrs. BLITCH. Suppose some of those farmers do not come through with their money?

Mr. WETZEL. There is no compulsion involved under the act and unless the 50 percent of the land above the structure is under agreement to carry out these conservation measures, we are not permitted to make the Federal funds available for the construction of the structures.

Mrs. BLITCH. All you have to do is get 50 percent of the number of landowners, or of the overall cost?

Mr. WETZEL. It is 50 percent of the watershed area above the structure.

Mrs. BLITCH. That would be landowners?

Mr. WETZEL. They must be under a cooperative agreement.

Mrs. BLITCH. Have they signed papers to the effect that they will cooperate with you?

Mr. WETZEL. A very high percentage of the landowners in that watershed are presently cooperators with the soil conservation district.

Mrs. BLITCH. I am asking this, sir, because I had quite a bit to do with the writing of this legislation. I had hoped it would help down in my area, which is the southeastern part of Georgia.

I am very much in favor of this particular project, but I am trying to learn how we can adapt this legislation to our own problems down there. That is why I am asking you these questions.

Mr. WETZEL. I might point this out also, Mrs. Blitch, that while the average landowner over a 5-year period will put up about $1,000 to install the land treatment measures on his own land——

Mrs. BLITCH. What are these land treatment measures?

Mr. WETZEL. The land treatment measures consist of terracing, waterway development, pasture establisment, pond construction, drainage channels, wildlife area improvement, roadside erosion control, and tree planting on the critical sediment area.

Mrs. BLITCH. In our area we have just had a meeting concerning the Satilla River and they invited the district engineer from the Corps of Engineers to meet with them. He pointed out that they might be in worse condition following something like this. I do not know whether you were brought into it or not, or whether they were trying to get the Corps of Engineers on the river, but one of the things he pointed out to them was that they might flood an area which had trees on it. The trees are very important to them there.

Mr. WETZEL. That is what I understand.

Mrs. BLITCH. And they might be sorry they had gone through with it.

Without following the problem through with them because I was unable to go down for the meeting, I was wondering whether the same type of project as this might work on the Satilla River. That is why I am asking you these questions. I do not know, and I want to know.

Mr. WETZEL. I might point this out in relation to the local cost-sharing requirements: While a $1,000 per average farm cost in this watershed will be involved, the landowners are also eligible for cost-sharing assistance under the agricultural conservation program, which averages out, I believe, to 50 percent. So they can seek that assistance.

Mrs. BLITCH. And the Soil Conservation Service in the State itself would see they got that.

Mr. WETZEL. That, of course, is administered by the State in these agricultural conservation program cases. It is a program entirely apart from the watershed program and has no relationship to the particular watershed program, since it applies nationwide.

Mrs. BLITCH. I see. Are you familiar with the Satilla River down in that area?

Mr. WETZEL. Only very slightly, Mrs. Blitch. I do not know whether Mr. Brown is familiar with it or not.

Mr. BROWN. Only very slightly, too.

Mrs. BLITCH. Well, you will have to know something about the Satilla River, because I have to have your help on it.

Mr. BROWN. We have been looking for some applications for assistance down there, Mrs. Blitch.

Mrs. BLITCH. Every time I try to do something under this act I am told that we are too far downstream for it to apply to us. So I am wondering if we have been thinking in terms of the smaller constructions rather than the larger constructions. We have had an authorization for quite some years on the Satilla River and the Corps of Engineers have come through with nothing on it. Or at any rate, they have not as yet, for good reasons, I am sure. But I am trying to help these people and I am wondering if this act might be applicable to the Satilla River problem. Desperation is a reason for a great part of this questioning.

Mr. BROWN. It is true, as you are aware, that we are limited by the act to working on streams that have drainage areas of not to exceed 250,000 acres. So we do not have authority to work on the mainstem river. It may be that in some circumstances——

Mrs. BLITCH. 250,000 acres in each project. Is that right?

Mr. BROWN. Yes.

Mrs. BLITCH. And you can duplicate those projects as you go downstream?

Mr. BROWN. But we cannot work on the mainstream itself. It may be that improvements on the mainstream are necessary, before the improvements can be carried back into the watershed area.

Mrs. BLITCH. The improvements on the mainstream would have to be done by the Corps of Engineers?

Mr. BROWN. That is right.

Mrs. BLITCH. And then you could come in?

Mr. BROWN. That is right. Then we could tie into that, if that is necessary, in order to provide outlets for the drainage or water off of these tributary watersheds.

Mrs. BLITCH. I do not want to bore the committee with my own particular problem, but it is the only way I know of of finding out something which means very much to me. The Satilla River up until a few years ago was not a large river, and it still is not, but it means a great deal to the recreational desires of the people in that area. Water pollution enters into the problem also.

Of course, Mr. Blatnik's bill, we hope, eventually can help in that, because we are building new sewage plants in the area in order to get the stream cleaner. Nevertheless, we are having erosion difficulties also because this year we were flooded seemingly beyond any hope of recuperation. At least they tell me so. I have never seen a time

down there when we did not recuperate to some extent, but right now they do not think they are going to recuperate too much. In recent years the drought has hurt very badly, too. Still, every time I call the Department of Agriculture to ask anything about it, I am told that we are too far downstream and the act does not apply to anything downstream.

When I came to Congress, I introduced a resolution and the members on the Agriculture Committee were not too enthusiastic about even holding hearings on it. I pleaded with them to hold hearings, and they did. Then, when the hearing came up it seemed everybody in the country who was concerned with watershed problems came up here, and we passed an amendment to Public Law 566. Now, to my knowledge, this is the first large watershed that has come before this committee from the State of Georgia. Is that right, Mr. Smith?

Mr. SMITH. Yes.

Mrs. BLITCH. So, while I am very happy about my colleagues from Georgia getting this, I feel awfully bad about those folks down there whom I represent, because they need help so much.

Mr. WETZEL. I do know, Mr. Smith, that the State soil conservation committee, which is the State agency that assigns priority among the applications on file, is certainly interested in developing the project.

Mrs. BLITCH. We have some small ones in the eighth district.

Mr. WETZEL. That is right.

Mrs. BLITCH. But we cannot go any further with the ones we have because of lack of participation. The private participation must be too high.

Mr. WETZEL. I might point this out: There is no cost sharing authorized under the act for any measures for recreational purposes.

Mrs. BLITCH. That is right.

Mr. WETZEL. For fish and wildlife, yes.

Mrs. BLITCH. That is right.

Mr. WETZEL. But not for recreation.

Mrs. BLITCH. But the development under the other terms of the act could be accomplished and help the recreational features. We hope so, at any rate.

Mr. Chairman, I have no further questions. Thank you very much.

Mr. SMITH. Are there any questions on my left?

Mr. BALDWIN. As a matter of information, Mr. Chairman, as I understand it, if you have a river which has a total number of acres in excess of 250,000, you cannot actually do flood prevention work and soil conservation work on the river itself, but you could approve individual projects on tributaries of that river if each tributary as a separate project involved less than 250,000 acres.

Mr. WETZEL. That is right, sir.

Mr. BALDWIN. So in Mrs. Blitch's case, if the mainstem involves a watershed of over 250,000 acres and you cannot go on it, nevertheless you could consider projects on the individual tributaries to that stream if each was under 250,000 acres.

Mr. WETZEL. That is right. Each tributary less than 250,000 acres is eligible to be a project. However, we may not plan or install measures on the mainstem of the river since the drainage area above that point would be more than 250,000 acres. But we can do work right up to the mouth of the tributary in the main stem.

Mr. BALDWIN. Thank you.

Mr. SCHWENGEL. Mr. Chairman, I have one question.

You say one requirement is where you proceed to get 50 percent of the total watershed.

Mr. WETZEL. That is right. That is a requirement of the law.

Mr. SCHWENGEL. I think it is a good requirement.

My next question is based upon your experience in this area and in other areas. Do you find that after you get started you get almost complete cooperation of all the farmers in that area?

Mr. WETZEL. That certainly has been our experience. The 50 percent requirement of the law has not proved to be a handicap and it has not proved to hold up any structure so far that the local people have not been able to get lands, easements, and rights-of-way.

Mrs. BLITCH. Will the gentleman yield?

Mr. SCHWENGEL. Yes.

Mrs. BLITCH. Regarding my own project, I can see where, if the Federal Government can come in and make that large a contribution after they have given their easements and rights-of-way, that they could very well figure out they could raise the average of $1,000 from private people.

Mr. WETZEL. That is right. It has not proven to be a deterrent to the installation of the structural measures. In fact, some States themselves decided that 50 percent is too low and have established the State policies requiring as much as 75 percent before the Federal money is made available for the structures.

Mrs. BLITCH. Under Public Law 566 the Agriculture Department does build all of the projects. Is that right?

Mr. WETZEL. No, that is not quite right. The flood prevention structures measures are paid for 100 percent out of Public Law 566 funds. The Agriculture Department does not build these structures.

Mrs. BLITCH. Who builds them?

Mr. WETZEL. The requirement of the act is that the local organizations will let the contracts for the structures.

Mrs. BLITCH. And maintain them?

Mr. WETZEL. And maintain and operate the structures. That is right.

Mrs. BLITCH. But the Army Engineers do not come into it?

Mr. WETZEL. No. They do not come in and build structures that are authorized as a part of the watershed project. That is right.

Mrs. BLITCH. Thank you.

Mr. SCHWENGEL. One further question: After these projects are completed, what jurisdiction do you have over controlling the maintenance of them? Suppose that people get careless and do not continue their own maintenance of their own project? Do you have any jurisdiction over that?

Mr. WETZEL. There is no actual enforcement power. Prior to the providing of Federal funds for any structure, a formal agreement is entered into by the Federal Government and the local organization in which the local organization agrees to operate and maintain the structures, and the details of carrying that out.

Mr. SCHWENGEL. When you say the local organization, what organization do you mean? Community or county?

Mrs. BLITCH. The soil conservation district.

Mr. WETZEL. That's right. It might be a soil conservation district there. In many cases the county government operates the operation

and maintenance, or it might be a drainage district or division. Any local organization.

Mrs. BLITCH. Is it not true that any group, including private industry groups, can come in and under this act join in with it, subject to reservation by the department?

Mr. WETZEL. Any local organization must have authority under State law to carry out the necessary works of improvements included in the watershed project. If a private group wishes to participate in one of these projects they may do so by participating through the legal local sponsoring organization.

In other words, they might make funds available.

Mrs. BLITCH. May I ask another question? To what extent are the States cooperating in the act?

Mr. WETZEL. There are several indications of that. Up to the present time about 37 States have passed about 95 separate pieces of legislation, that is, the State legislatures passed this legislation.

Mrs. BLITCH. Are those mostly enabling acts, or did they pass acts where the State itself joins in providing grants for these?

Mr. WETZEL. They are of both types. I might point out a few specific examples. One State is Connecticut, for example, which made a very sizable appropriation which is available to the local organizations to pay for the costs of the lands, easements, and rights-of-way. In other words, all necessary local costs are covered by State appropriation. Certain acts with similar provisions have been passed by a number of other States, where the local organizations can be partially reimbursed for the costs of lands, easements, and rights-of-way.

I might also point out that there are now about 14 States which feel that the program has not been going forward as rapidly as they would like to see it go forward in their State, due to the lack of Federal funds for the watershed plans. So the State legislatures have appropriated funds to finance additional planning systems in their State in order to speed up the progress.

Mrs. BLITCH. Georgia is not one of those States.

Mr. WETZEL. Georgia is not one of those. That is right.

Mr. SMITH. Are there any further questions?

(No response.)

Mr. SMITH. Thank you very much, Mr. Brown and Mr. Wetzel.

Mr. Shipley called and was coming over here today. Is that right, Mr. Brennan?

Mr. BRENNAN. Yes, sir.

Mr. BALDWIN. Mr. Chairman, do you want us to take action on it?

Mr. SMITH. I think we ought to take action.

Mr. BALDWIN. I will be glad to make a motion to approve each of these three projects.

Mrs. BLITCH. I second it.

Mr. SMITH. It has been regularly moved and seconded that all three projects be reported for approval by the full committee. Without objection, that will be done.

That concludes the hearing and the subcommittee is now adjourned.

(Whereupon, at 11 a.m., the subcommittee adjourned.)

SMALL WATERSHED PROGRAM

THURSDAY, AUGUST 20, 1959

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
SUBCOMMITTEE ON WATERSHED DEVELOPMENT,
Washington, D.C.

The subcommittee met at 10 a.m. in room 1304, New House Office Building, Hon. Frank E. Smith (chairman of the subcommittee) presiding.

Mr. SMITH. Mr. Brown, do you desire to present these projects? We will start with the Flat Creek Watershed.

Mr. BROWN. Yes, sir.

STATEMENT OF CARL B. BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR, ACCOMPANIED BY JOHN H. WETZEL, DIRECTOR, WATERSHED PLANNING DIVISION, SOIL CONSERVATION SERVICE—Resumed

Mr. BROWN. Mr. Chairman, we have these seven projects that are on your agenda this morning, and those represent the last projects that will come before this committee at this session of the Congress. We are very happy to have an opportunity to explain those to you briefly this morning, and, unless you have some preference otherwise, we will take them up just in the order in which they are listed here.

Mr. Wetzel will explain the Flat Creek project.

FLAT CREEK, LAWRENCE COUNTY, ARK.

Mr. WETZEL. Mr. Chairman, members of the committee, the first project that we are pleased to present to you is the watershed project for Flat Creek in Lawrence County, Ark. This project is sponsored by Lawrence County Soil Conservation District and the Arkansas Game and Fish Commission. It comprises an area of about 24,000 square acres, and it is truly a multiple-purpose watershed project in that the purposes included are flood prevention, drainage in the delta area of the watershed, plus fish and wildlife in the large structure shown at this point.

This is the first project that has been presented to your committee that includes fish and wildlife as a purpose and as a cost-sharing purpose. That was authorized by the last session of the Congress, and there has been very substantial interest throughout the country in including fish and wildlife as a cost-sharing purpose in the watershed project.

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The project consists of about 4½ millions of flood-water diversion channel, 10 miles of channel improvement, 6 flood-water retarding structures, of which 1 is a multiple-purpose structure, including fish and wildlife.

I might just explain the fish and wildlife feature of the project.

This large structure is about 12,000 acre-feet capacity. It has 5,000 acre-feet capacity for flood-prevention purposes, which is the maximum permissible under the act.

In addition, the Arkansas Fish and Game Commission has asked that the additional 7,000 acre-feet capacity be included for fish and wildlife purposes.

It will provide a sizable fishing lake in this area where fishing facilities are very critically needed.

I will refer to this map, where this upper area is the Flat Creek watershed. Just outside of the watershed the Arkansas Fish and Game Commission has purchased a 9,000-acre area which will be used as a duck resting area and as a public shooting grounds.

The intent is that prior to the season in which the ducks will come through this area a sizable amount of water will be released from this structure. It will be carried down this flood water diversion channel and this 9,000-acre area will be flooded to provide a very fine public shooting grounds.

The cost sharing has been provided by the Arkansas Fish and Game Commission in that they are providing all of the land easements and rights-of-way for this large multipurpose structure. They have appropriated approximately $150,000 of the State funds in order to provide the necessary easements for that structure.

The plan, as I said, also includes about 10 miles of channel improvement for drainage purposes, which will permit the increased use, more intensive use, of the flat land directly below this flood water diversion which will provide the needed flood protection to permit the drainage of that land and more efficient use of the land.

The flood damages will be reduced by about 68 percent as a result of the project, or roughly 71 percent of total damages.

Experience has been that this entire area in here has been flooded an average of about four times a year from Flat Creek. The project will provide that a storm producing 8.1 inches of rainfall will be controlled by the structural measures of the channels and the floodwater diversion. Total cost of the project is $910,000, of which the 566 funds will provide 58 percent, or $532,000.

The local people, including the Arkansas Fish and Game Commission, will put up $378,000.

The benefit-cost ratio is 2.2 to 1.

Mr. SMITH. Are there any questions?

Mr. BALDWIN. Mr. Chairman, I have just one question. I am very much interested in this program for fish and wildlife. Let me ask this question. As I understand it, an additional 7,000 acre-feet has been provided for that aspect of the project.

Mr. WETZEL. Yes, sir.

Mr. BALDWIN. I am interested as to how that cost is broken down for that addition. Is that additional feature paid by the Federal Government or by the local fish and wildlife people or divided or just how is that worked out?

Mr. WETZEL. The Sikes bill passed during the last session, together with departmental policy, provides there shall be 50–50 cost sharing on any fish and wildlife features that are added to a plan.

In other words, the Federal Government provides 50 percent of the cost of installing fish and wildlife measures and the local organization, which may be the State fish and game agency or it may be county government—any legal local organization—may put up the other 50 percent.

Mr. BALDWIN. These 50-percent shares apply to the additional cost in building the dam big enough to extend over the additional 7,000 acre-feet?

Mr. WETZEL. That is right, sir. The cost allocation is figured on an incremental basis, on fish and wildlife. In other words, the additional cost for fish and wildlife is the cost of providing the multiple-purpose structure less the cost that would be required to provide a single-purpose flood prevention structure. It is quite an advantage to the local organization for the fish and wildlife purposes.

Mr. BALDWIN. Thank you.

Mr. MACK. Roughly, what will be added to the cost because of fish and wildlife measures?

Mr. WETZEL. I believe I can tell you the cost of that structure, sir. The multiple-purpose structure will cost $161,000. I'm sorry. I do not have the figures on that, sir, but it will be in the ratio of about 5 to 7.

In other words, the Federal Government would be paying for 5,000 acre-feet. The local people would be paying for half of 7,000 acre-feet, so that would figure out about $30,000. There would be an increased Federal cost as a result of adding fish and wildlife.

Mr. SMITH. Thank you, Mr. Wetzel.

Will you go on to the next project, Second Creek watershed.

SECOND CREEK, ADAMS COUNTY, MISS.

Mr. BROWN. Mr. Chairman, the Second Creek watershed is located in Adams County, Miss., and is a short distance east and south of the city of Natchez. This is a watershed project designed to provide protection for agricultural lands and for roads and highways and other uses. However, its benefits are very largely agricultural.

The project is sponsored by the Second Creek Watershed Drainage District, organized under the laws of the State of Mississippi, and by Adams County Soil Conservation District. The local drainage district there is a legal entity, shown in the pattern here in yellow, and all of those have conservation pools for sediment storage in them. They control about 55 percent of the total watershed area.

In addition, there are channel improvements to be constructed as outlets to the Homochitto River which aggregate 9.7 miles. The project will provide protection to 8,563 acres of agriculturally used flood plain. About 2,000 acres of that flood plain area has gone out of production in recent years because of the excessive flooding and swamping which has taken place in the area.

Now, the total cost of this project will be $1,755,000 in round figures, of which the Federal cost, paid from appropriations under Public Law 566 will be $1,116,000, or 64 percent, and the non-Federal cost will be $638,000, or 36 percent of the cost.

The benefit-cost ratio on this project is 1.5 to 1. The current damages being experienced in the project will be reduced by an amount of 82 percent, or about $60,000 of average annual damage reduction, and in addition to that the benefits accruing from the land which has been swamped and has gone out of production, which will become productive again as a result of the flood protection, will add an additional $18,000 in round figures, of benefits, or a total of about $79,000 annually of benefits that will accrue in this area.

The operation and maintenance of the project has an estimated cost of $8,700. That will be guaranteed by the Second Creek Watershed Drainage District and will be obtained partly from cash assessments on the beneficiaries and partly from donations of materials, labor, and equipment by those beneficiaries.

I believe that is the general summary of the project, Mr. Chairman.

Mr. SMITH. Are there any questions?

Thank you, Mr. Brown.

You may go on to the Tehuacana Creek watershed.

Mr. BROWN. Yes, sir.

TEHUACANA CREEK, WACO, TEX.

The Tehuacana Creek watershed is in McLannan, Hill, and Limestone Counties, Tex., in the central part of the State near the city of Waco.

This project is jointly sponsored by three soil conservation districts, the McLennan County District, Navarro-Hill District, the Limestone Falls Soil Conservation District; also by McLennan and Hill Counties and by Tehuacana Creek Water Control District No. 1. The water control district, organized under the laws of the State of Texas, is the legal entity which will be responsible for the construction, operation, and maintenance of the structural works of improvement, and it has under the State law power of taxation, benefit assessments, and power of eminent domain for acquiring necessary land easements and rights-of-way.

This is a project area of farily large size. It comprises 196,480 acres. The flood protection scheme in this watershed consists of 31 floodwater retarding structures as shown on this plan. Those structures have an aggregate capacity, total capacity, of 75,306 acre-feet of storage. The largest of those structures has a total capacity of 6,518 acre-feet, of which nearly 5,000 acre-feet is the floodwater detention capacity.

This project will provide protection to the area that is shown in blue. These are the lands subject to flooding. The protection is very largely agricultural, except for the protection that will be afforded to roads and highways and railroads and pipelines that cross this area.

The total present average annual flood damage in this watershed is estimated at slightly over $300,000, and that flood damage will be reduced by about 87 percent.

In addition to those benefits accruing from flood damage reduction, there will be an intensification of land use in certain areas where the flooding has been so severe that the land has not been in crops in recent years. That will add an additional benefit of nearly $20,000 annually.

This project has a total cost of $6,572,000 in round figures. Of that amount, the Federal part of the cost will be $4,212,000, or 64 percent, and the non-Federal cost will be $2,359,000.

The project has a benefit-cost ratio of 1.7 to 1. The estimated annual operation and maintenance cost on the project will be $19,500, which will be borne entirely by the local organization out of revenues collected from assessments on the beneficiaries of the project.

I believe that, Mr. Chairman, is a general statement of the nature of this project.

Mr. SMITH. Thank you.

Are there any questions?

Mr. WRIGHT. Mr. Chairman, I am familiar with the Tehuacana Creek watershed generally, but do not know exactly where it enters the Brazos. Does it not enter the Brazos above Lake Waco?

Mr. BROWN. It enters the Brazos. I am sure it is above Lake Waco.

Mr. WRIGHT. Lake Waco is a project in which the Federal Government has a considerable investment pledge, in the raising of the dam and increasing of its storage capacity of a Corps of Engineers reservoir there above Waco, and it has been badly silted in the past.

Mr. BROWN. You are certainly right.

Mr. WRIGHT. I think you are undoubtedly familiar with that. This should have an additional benefit in preserving the Federal investment at such a reservoir as that by retarding the siltation; should it not?

Mr. BROWN. I am not familiar with the Army's project there. The original Lake Waco was on the Bosque River rather than the Brazos River as I recall. The water supply reservoir known as Lake Waco was on the Bosque River.

I am not sure about the Army project. Is that to be developed on the same site as the original Lake Waco?

Mr. WRIGHT. It is, and enlarged.

Mr. BROWN. I do not think it would affect it. This comes into the main stem of the Brazos whereas the Bosque itself was a tributary of the Brazos.

Mr. WRIGHT. I flew over some of this land in 1957 when they had these floods and these tributaries had spread out very, very badly over much of that good bottom land and destroyed an awful lot of crops. I think this is a very fine project.

Mr. BROWN. It has been an area of very severe flooding for a long period of time. As the summary will show you, during the 20-year period, 1923–43, there were 32 floods which inundated more than half of the flood plain area that is shown in blue here and 39 smaller floods in addition to that. It has been an area of severe periodic freak flooding.

Mr. WRIGHT. I think you are right about that other. I believe the Bosque comes into the Brazos at another point and this would not affect it.

Mr. BROWN. Yes; it is a different tributary.

Mr. MACK. Mr. Chairman, one question: How much money is in the current budget for the clearing out of these watershed programs?

Mr. BROWN. The appropriation this year, Mr. Mack, was $22,750,000 under the watershed protection item.

Mr. MACK. How does that compare with the previous year?

Mr. BROWN. There was some slight reduction from the previous year. In the previous year there was $25,500,000 in the budget. That reduction was made on the basis that there was a considerable carry-over of funds from the previous year.

Mr. MACK. What is your backlog at the present time?

Mr. BROWN. In terms of projects authorized up to the present time, there were 180 at the beginning of this fiscal year.

Mr. MACK. One hundred and eighty projects?

Mr. BROWN. One hundred and eighty projects had been authorized. By the time these projects and a group going to the agricultural committees are considered, there will be about 205 projects that will have been considered for authorization by the 1st of September.

Mr. MACK. How much money does that represent in Federal expenditures?

Mr. BROWN. In terms of total Federal costs, the total Federal costs on the 180 projects that were authorized up to the end of the last fiscal year would involve $121,924,000 of Federal costs.

Mr. MACK. In most cases it will require 2, 3, or 5 years to carry out these projects?

Mr. BROWN. Yes.

The average project period is running slightly over 5 years. The very small ones may be a year or two and the largest ones might be as much as 10 years in completion.

Mr. MACK. That is all, Mr. Chairman.

Mr. BALDWIN. Mr. Chairman, could I ask one question along this line?

Following Mr. Mack's point, spreading these projects over 5 years, does this indicate that as far as the funds that are required to start these projects, the appropriation that you have received this year will be adequate or will these projcts we are working on now for example be held up because of funds?

Mr. BROWN. Our appraisal of the current availability of funds, Mr. Baldwin, would indicate that funds will be sufficient to proceed into the design stages providing engineering services and technical assistance this year on these projects which are currently being considered for authorization. The funds would not be sufficient this year to provide money for contracting on these projects, but normally it requires from 9 to 12 months following project approval to carry out the detailed project planning, the preparation of designs and specifications and detailed foundation investigations and that sort of thing, so we do not believe that there will be any handicap this fiscal year in moving ahead as fast as could be done under any circumstances.

Mr. BALDWIN. Thank you.

Mr. SCHWENGEL. Mr. Chairman, following up on the question raised by Mr. Mack, I would like to know how much land area is involved in this expenditure of $116 million?

Mr. BROWN. One hundred and twenty-one million in the 180 projects, Congressman, and these projects will run about—the 180 projects that were authorized through the end of the fiscal year involved 10,602,000 acres.

Mr. SCHWENGEL. That is over $10 an acre.

Mr. BROWN. Yes, sir; that is right. The project costs are running about a little over $20 per acre total, of which the Federal share of the cost is currently about $12 an acre.

Mr. SCHWENGEL. Have you made any studies on increased value of the land over a period of years?

Mr. BROWN. That is evaluated in each individual project, Congressman, and we have made a general summary of all of these projects, which show that the total of the benefits in relation to the total of the cost is about $2 for 1—about a 2 to 1 average benefit-cost ratio.

Mr. SCHWENGEL. That is a pretty good rating.

Mr. BROWN. Yes, sir.

Mr. SMITH. Thank you, Mr. Brown.

We will take the Marsh-Kellogg Creek watershed, California.

Mr. BROWN. Mr. Wetzel will explain that, sir.

MARSH-KELLOGG CREEK, CONTRA COSTA AND ALAMEDA COUNTIES, CALIF.

Mr. WETZEL. The next plan to be presented is that for the Marsh-Kellogg area, in Contra Costa and Alameda Counties in California.

This watershed plan covers an area rather than an individual watershed, which includes the watershed of Marsh Creek, the watershed of Kellogg Creek and the Balfour area which is an area that is not affected by overflow from either Marsh or Kellogg Creek but which suffers serious flood damages due to direct precipitation.

The Marsh-Kellogg area is about 40 miles east of San Francisco and the streams are tributary to the San Joaquin area.

The total area covers about 116,000 acres. The plan is cosponsored by the eastern Contra Costa Conservation District, Contra Costa Soil Conservation District, and Contra Costa County Flood Control and Water Conservation District.

The area is about 35 percent in orchards—walnut, pecan, and apricot.

The remainder of the area is in grass, with the exception of a few urban areas within the watershed area.

The plan is a single-purpose plan for flood prevention. The whole area has been subject to very severe floods averaging about once every 3 years. The plan as proposed will reduce the frequency of flooding in the flood plain area, which is the area colored orange, to a frequency of about once in 25 years and for the urban areas that have been affected here; Brentwood and several other small urban areas, the frequency of flooding will be reduced to once every 50 years.

The plan as proposed consists of land frequency measures on the watershed lands, 12 miles of channel improvement, 24 miles of surface disposal systems and six floodwater retarding structures, the largest of which is just under 5,000 acre-feet.

The average annual flood damages in the area mount to $459,000. The plan as proposed will reduce the average annual flood damages to roughly about $18,000, or a reduction of 96 percent in the average annual flood damages.

The cost of the total plan is $5,942,000, of which the local people will put up 43 percent, or $2,576,000, with the 566 funds providing $1,366,000 or 57 percent.

It is interesting in that the local people have already spent more than a million and a half dollars in installing the necessary land treatment measures on the watershed lands over the past 7 or 8 years.

The annual operation and maintenance cost will be about $36,000, which will be assumed by the flood control and water conservation district, which has the legal authority to tax and which will also provide the necessary land easements and rights-of-way for the floodwater retarding structures and the channel improvement.

In the State of California the local organization which provides land easements and rights-of-way is eligible for reimbursement from the State for one-half of the cost of those land easements and rights-of-way from State funds.

The benefit-cost ratio will be approximately 1.9 to 1 and there will be some drainage developments that will take place in the Balfour unit as soon as it does receive adequate flood protection from the proposed program.

However, they are not considered as part of the proposed project.

Mr. BALDWIN. Mr. Chairman, I would like to say that when our committee came out to California in 1956, I believe it was, we went to Antioch. We took the boat up the river to Stockton. That part in pink at the edge of the water is Antioch and the area in blue is the area we traveled along.

In this area I would say the most important agricultural crop is orchard and I have had the unpleasant experience of going out there, observing after one of these floods occur. Water may sit on these areas for a couple of weeks, and the next thing you know the orchards come out and bud. In the meantime, a large portion of the roots have rotted and the remaining root structure cannot carry the amount of food required to cause that tree to blossom out. It will blossom part way out and the whole thing will die. I have seen orchards completely die out in this area because of flooding.

Mr. Chairman, I want to say we are deeply appreciative of your kindness in scheduling this meeting today so that this project may be one of those considered.

Mr. SMITH. Before we approve the project, I would like to ask whether or not this area will be benefited and whether or not these orchards wil be cut up and put into housing developments before the benefits are realized.

Mr. BALDWIN. That is a legitimate question, Mr. Chairman. On the same trip you will recall we drove through the Walnut Creek area, about 30 miles to the east of this, which is now in the process of changing through suburban development. This area is too far from San Francisco-Oakland. To the best of my observation this will remain primarily agricultural for a good number of years to come.

In fact, some of the farmers in the Walnut Creek area are buying farms in this area. May I say Mr. George Miller phoned me this morning to say that he had a special meeting with the space committee and could not come but he wanted to inform you he joined with me in supporting this project. Part of the Kellogg portion of the project is in Alameda County.

Mr. SMITH. Are there any further questions? If not, thank you, Mr. Wetzel.

UPPER CLEAR BOGGY CREEK, COAL, JOHNSTON, AND PONTOTOC COUNTIES, OKLA.

Mr. BROWN. Mr. Chairman, the next project on the agenda is the Upper Clear Boggy Creek project in Coal, Johnston, and Pontotoc Counties in Oklahoma. This is a project which is jointly sponsored by the three soil conservation districts by the same names in those three counties and by the Upper Clear Boggy Conservation District, a local organization formed under the conservancy district laws of the the State of Oklahoma, which has powers of taxation and powers of eminent domain required to provide benefit assessments and collect revenues for carrying out the projects. This is a rather large area, an area of 162,240 acres. This project consists of 54 floodwater retarding structures, shown in the usual pattern, which have a total capacity of 59,939 acre-feet. The largest of those structures is 5,649 acre-feet in size, of which nearly 5,000 acre-feet is flood detention capacity and the remainder is reserved for sediment storage.

This, likewise, is an area which has been subjected to repeated and frequent flooding. The average flooding in that area has been evaluated as amounting to $288,000 over a long period of years.

The system of flood prevention proposed in this watershed is estimated to reduce the flood losses by 86 percent.

In addition, this has a value of $225,000 annually.

Some of the area in here has gone out of production because of repeated flooding and sediment and the intensification of use of land that will be permitted on that area not now used for agriculture will amount to more than $34,000 of additional benefits.

This project has a total cost of $4,566,000, of which the cost out of Public Law 566 funds will be $2,349,000, or 51 percent, and other costs will be $2,216,000, or 49 percent.

The project evaluation indicates a benefit-cost ratio in this case of 2.8 to 1, a rather favorable ratio.

In addition to the direct benefits accruing within the project area, I would like to point out that a few miles downstream from this project, on this same watershed area, is the Boswell Reservoir, authorized to be constructed by the Corps of Engineers, but which is not yet constructed. This will be a case, Mr. Wright, in which there will be direct benefits accruing in the way of sediment reduction.

Mr. SMITH. Have those benefits been computed or added into your computations and included in them?

Mr. BROWN. I am not sure that they have been evaluated in dollar terms because they were not necessary to the economic justification of the project. There will be quite substantial reductions in the amount of sediment coming off this watershed as a result of these improvements. This project will be operated and maintained by the Upper Clear Boggy Conservancy District by assessing the benefited landowners, and the estimated cost of the operation and maintenance will be $5,580 annually.

I believe that is the general summary of this Oklahoma project.

Mr. MACK. Mr. Brown, are you familiar with the Chehalis project in the State of Washington?

Mr. BROWN. I am not familiar with it.

Mr. MACK. What is the distinction between the projects of this nature that are carried out by the Reclamation Bureau and the projects that are carried on by your department? How do they differ?

Mr. BROWN. I am not sure whether this one that you are speaking of is a reclamation project carried out under the old existing reclamation laws, or whether it might be under the new Small Reclamation Projects Act.

Mr. MACK. It is a project for soil conservation and irrigation in that area.

Mr. BROWN. The act of 1902, as amended, of course provides for a Federal development of a project for irrigation and other purposes, such as a municipal water supply, and it can include flood-control features, or power features, as the case may be.

This watershed protection and flood-prevention program is authorized in Public Law 566 of 1954, and as subsequently amended in 1956, and again in 1958, and provides for the initiation of projects by local organizations, approval by the State, and provision of Federal technical and financial assistance to those local organizations to carry out the projects. That is one distinction. This is not a federally developed project, though we provide cost sharing, whereas the reclamation projects are Federal projects planned and undertaken by the Federal Government with contract with local organizations for reimbursement or repayment of the costs.

I do not know if that exactly answers your question.

Mr. MACK. The two services in many cases seem to duplicate one another, it seems to me.

Mr. BROWN. I am not personally familiar with the particular reclamation project that you are speaking of. We do have projects of similar character, quite a number of them, in the same States where these reclamation projects are being developed. As you know, this committee approved in this last session two projects in the State of Washington southeast of Seattle, and the principal objectives there were drainage improvements and flood prevention by channels and pumping systems. The benefits there are largely agricultural in those two projects, but they are developed under a different form of authorization, a different concept of project development than reclamation projects.

Mr. MACK. If this Chehalis River project was under your department and funds were approved for a survey, how long would it normally take to do the complete survey and have it ready for submission?

Mr. BROWN. Not knowing the size or the complexity of that particular project, I would hesitate to say. I would say that a project of this character here involving 162,000 acres would generally take about 6 months in the planning process, to develop the field information and make the analyses, and so forth, with one planning party. We have one planning party in nearly every State. A planning party is an organization which on the average would represent a Federal cost of some $80,000 to $90,000 a year—that is about the average amount allotted to a State for planning purposes—and one party can plan about two projects a year of this size.

ROANOKE CREEK WATERSHED

Mr. WETZEL. The next project to be presented is the proposed plan for the Roanoke Creek watershed, which is a tributary of the Roanoke River located in the eastern part of Charlotte County, Va.

The plan is cosponsored by the Southside Soil Conservation District, the Charlotte County Board of Supervisors, and the municipalities of Keysville and Drakes Branch, Va.

The proposed plan will be carried out over a 5-year period and cover an area of about 142,000 acres.

It is a multiple-purpose plan in that the primary purpose is flood prevention. However, it will include a municipal water supply for the town of Keysville, Va., and the town of Drakes Branch, Va., which are in critical need of an additional municipal water supply. It will also include a very small additional capacity for irrigation in one of the structures.

The principal measures proposed are 56 miles of channel improvements and 14 floodwater retarding structures and 3 multiple-purpose reservoirs, 2 of them being combined for flood prevention and municipal water supply, and the third being the combined flood prevention and irrigation and water supply.

The watershed is rather interesting in that up to about 20 years ago the area shown in green here [indicating], the flood plain lands, represented some of the finest agricultural land in this part of the State of Virginia. Due to the deterioration of the watershed area, the deposition of sediment on the flood plain lands, the flood plain lands have been almost completely abandoned as far as productive agriculture is concerned due to the flood risk, and the landowners have been moving back to the hill lands with their cultivated crops. This has produced a very serious erosion condition back on the hillside and as a result the economy of the complete watershed has suffered very substantially.

The plan as proposed will provide a high degree of protection for the flood plain areas shown in green, and they will be utilized for more intensive forms of agriculture with the cultivated crops, the row crops, being transferred from the hill land, which will be returned to grass, to the bottom lands which represent the very productive soils in the area.

It is interesting in that the flood plain area shown in brown [indicating], which is the lower portion of Roanoke Creek, had deteriorated to such an extent, according to the decision of the local people in this area, that it should not be returned to cultivation. Also, it has developed into a very fine duck-breeding ground and the local people made their own decision that they prefer to retain the lower portion of the flood plain area as a wildlife area rather than provide an adequate degree of flood protection so that it can return to agriculture.

The two small towns of Keysville and Drakes Branch have employed private consulting engineers to develop the plan for including a municipal water supply in the two multiple-purpose reservoirs. The towns have put up the necessary funds to pay the entire costs of the municipal water supply, and they are very anxious to develop this additional water supply so as to be able not only to provide the adequate municipal water for the residents there, but several indus-

tries have indicated an interest in locating in these towns and as soon as they investigated the water supply situation they determined that it was just not adequate for their purposes and so have given up on locating in those towns.

The total average annual damages in the watershed are $105,000. The plan as proposed will reduce those average annual damages by $101,000, or about a 96-percent reduction in the average annual flood damages.

The total cost of the plan is $2,306,000, of which the local people will put up $778,000, or 34 percent of the total cost. The Public Law 566 funds are $1,528,000, or 66 percent of the total cost of the project.

The annual operation and maintenance costs are $17,000, which will be assumed by the Charlotte County Board of Supervisors and by the two municipalities for the two multiple-purpose reservoirs which includes a municipal water supply.

The benefit-cost ratio for the total project is 1.4 to 1.

Mr. SMITH. Thank you.

Are there any questions?

CANEY-COON CREEK WATERSHED

Mr. BROWN. Mr. Chairman, the last project on the agenda this morning is the Caney-Coon Creek Watershed in Coal County, Okla. This work plan has not actually been transmitted yet, but it is expected to be transmitted by the Budget Bureau tomorrow.

There has been a slight delay due to the failure of receiving comments from other Federal agencies that were scheduled to comment on it. They have now been received and we understand the project will be coming up.

This is a comparatively smaller project than the other ones that we have been talking about this morning. It covers an area of 23,571 acres. It is jointly sponsored by the Coal County Soil Conservation District and the city of Coalgate.

It is a multiple-purpose project for flood prevention and municipal water supply. It includes one multiple-purpose structure which contains both municipal supply and flood prevention storage, and two smaller flood-prevention structures.

The total capacity of the three structures is 14,502 acre-feet, of which the municipal storage, included in the larger of the three structures, will be 3,000 acre-feet.

That structure, the largest of the three, will have a total capacity of 8,501 acre-feet.

This area has had repeated flooding and has had an average annual damage evaluated at $10,718. The three reservoirs planned here will plan for a 93-percent reduction in that average annual damage. The total cost of this plan will be $507,183, of which the Federal cost will be only $144,158, or 28 percent. The non-Federal cost of the project will be $363,025, or 27 percent. That high ratio of non-Federal cost is the result of the fact that a substantial part of the cost will be for the municipal water supply, which is paid for in full by the city of Coalgate. The city of Coalgate has also guaranteed the operation and maintenance of the entire project from city revenues. This project has a benefit-cost ratio of 1.4 to 1.

Mr. SMITH. Are there any questions?

Mr. SCHWENGEL. A constituent of mine who moved to Oklahoma recently sent me a newsletter sent out by one of the Representatives from the great State of Oklahoma indicating that Oklahoma has gotten more Federal projects than any other State of the Union. I would like to determine whether or not Iowa is getting its share in this field compared to what Oklahoma is getting. My question is, do you have any figures on the total cost of these watershed projects in the State of Oklahoma?

Mr. BROWN. I think I probably do. I may say this in general, however, that the same amount of planning assistance is provided by the Soil Conservation Service in Iowa as is provided in Oklahoma. We have one planning party in each State. I would say, though, in addition to that that the State of Oklahoma has appropriated State funds to supplement the planning of work in Oklahoma and in this last session of the legislature they appropriated $320,000, which compares to less than a third of that amount made available by the Federal Government. So, as the result of additional State funds—and this is the third year that there have been some—more projects have probably been planned. Up to this time every project that has been sponsored by local organizations, and for which there has been money to plan, has come along in order without any priority and we have been able to make funds available as soon as the local people are ready.

Mr. SCHWENGEL. That is true because Oklahoma has done that and they may be ahead of any other State in this particular program.

Mr. BROWN. I doubt if they are ahead of any other State. I think probably Texas is the head of the procession in the number of projects, but certainly Oklahoma is up among the top half dozen.

Mr. ROBISON. Are there any other States besides Oklahoma that are supplementing planning funds?

Mr. BROWN. Yes. There are some eight or nine States now which have appropriated funds to supplement the Federal planning funds. Also, quite a number of local organizations are providing planning funds. I might say that the State of California, Mr. Baldwin, has provided planning funds for two parties compared with the one party provided by the Federal Government. The State of Arkansas has provided funds for one planning party. The State of Tennessee has appropriated funds for one planning party. In Texas these local conservancy districts have raised funds and made them available on trust-fund basis for these planning activities.

Mr. ROBISON. I am from the Northeast. Are there any Northeastern States so supplementing the planning funds?

Mr. BROWN. I would say this: For example, we have a project which is coming up on the North Branch of the Park River at Hartford, Conn., in which the city of Hartford has employed a consulting engineering firm out of Boston which has done most of the planning of the project—all of the engineering phases of it at their cost. That is one instance that I know of. There have been various forms of aid I think probably from towns rather from the State government.

In answer to your question, Mr. Schwengel, the eight projects that have thus far been authorized in Oklahoma have a total estimated Federal cost of $8,500,000 in round figures, compared with the five projects authorized by Iowa, which have a total Federal cost of $1,300,000.

Mr. SMITH. Mr. Brown, in these areas where there is State or local participation in the planning, is that resulting in a situation where they will get planning that other people would not get.

Mr. BROWN. Not as far as the Federal Government is concerned. We put the same amount in.

Mr. SMITH. But more plans would come up for authorization?

Mr. BROWN. It has the implication that those States will have more plans which will come up for authorization than the States that have not put up any additional State money.

Mr. WRIGHT. They will get there faster; is that it? If they get their projects engineered and surveyed they will be eligible for authorization more quickly than the projects in those States that have not put up any money?

Mr. BROWN. That is right.

Mr. MACK. If the State puts up the money who makes the survey?

Mr. BROWN. That has been handled in different ways. In some instances the State has made funds available to the Soil Conservation Service under a trust-fund agreement and we have employed the personnel and paid for the surveys. In other cases, as in the case of California, they have organized their own parties, employed State personnel, and we are just maintaining a liaison with those parties. They are following the Federal criteria in the development of the projects, but the job has actually been done by State personnel. In still other cases, such as Hartford that I mentioned, private consulting engineering firms have done a major part of the planning.

Mr. MACK. Your agency does review the recommendations?

Mr. BROWN. That is right. We always reserve the final judgment in the technical review and submission of the project.

Mr. MACK. I recently had a case where the local interests employed their own engineers and made a survey of a navigation project and they sent in a very elaborate report and I rather thought from the letter that I got from the Army engineer that they rather resented having local engineers tell them how these projects should be surveyed.

Mr. SMITH. This would mean that a far greater portion of these projects would be authorized in areas where the local people are in a better position to pay for the planning and perhaps their need would not be as great.

Mr. BROWN. I might say this, Mr. Chairman—not in the sense of defense—but as a matter of information, there has been the other point of view that the Soil Conservation Service is not being fair when it allocates approximately the same amount of money for planning to the State of Texas, which has 87 State-approved applications, as of the present date, that it allots, say, to some other States, which may have only 10 or a dozen applications. We have tried to make an equitable distribution of the Federal planning resources so that each State, that has enough applications to justify a full workload for a party, is treated on the same basis. I think it is only result of the fact that you do have such heavy pressures building up in some States for this program that the State itself, or the influences in the State, have been brought to bear on the State legislature to try to supplement the funds in order to move the program ahead faster.

Mr. SMITH. Of course, the information is available for a great many other activities both by Federal and State agencies.

Mr. BALDWIN. Is a motion in order to approve these projects?

Mr. SMITH. Yes. Before you make the motion I think that it would be proper to inform the committee that the Oklahoma project and the Virginia project had a local contribution of less than 30 percent. There is nothing in the law that provides that it should be that, but the Bureau of the Budget is trying to get a bill passed that all projects have a local contribution of 30 percent. They suggested that approval will be withheld on these. The chairman is ready to entertain a motion to approve all seven of the projects.

Mr. BALDWIN. I make the motion.

Mr. CLARK. I second the motion.

Mr. MACK. I think that we should have a report on Coon Creek. While I will vote for the motion, I think that we should have such a report.

Mr. SMITH. Are there any questions on the motion?

If not, all in favor will say "aye"; opposed "no."

(Whereupon the motion was carried unanimously.)

Mr. SMITH. The committee will stand adjourned subject to the call of the Chair.